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Fishing Chimes

Comments :

The Confrontation

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Report: 6th Workshop at Dhauli, Orissa

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Fishing Chimes

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Letters to the Editor

Dear Sir,

I do not agree at all with your view (Comments: June 1982 issue) that larger houses will be the most suitable parties to undertake development of deep sea fishing. All over the world there are several small and medium level companies who are successful in the field of deep sea fishing.

In India, whether larger houses should participate in the development of deep sea fishing industry or not should not really be an issue. Considering the low level of development of the field, all sectors, public and private (large, medium and small) should be allowed to participate. The present position in India is that all the sectors feel hindered to enter the field, in spite of the various incentives given by the government. The real reason for the state of affairs is the present conditions of existence. No proper analysis of the situation has been made either by the government or the Industry. Only when this is done and sound conclusions drawn and acted upon, there will be deliverance.

P. S. Raman
Madras

Dear Sir,

The International Conference on deep sea fishing held in June 1982 was timely. The composition of the foreign delegates is such that the accent of the deliberations was on charters and joint ventures. These are already part of our national policy and are not new. The only benefit that has accrued is that the foreign delegates explained as to how they diversified into various types of fishing. Lessons have to be learnt therefrom.

For us the major problems are i) Investments, ii) risks and iii) expertise. The fear of risks in the deep sea fishing business will deter investments outside SDFC funding, for a long time to come. Only larger houses who have surplus funds can take risks in the investments. The fear of risks is really imaginary, but many entertain this.

Fear of risks in investments has to be first taken care of. For this, the most feasible alternative is to set up a national level Corporation. Let this Corporation obtain loans from SDFC and build fishing vessels at public sector shipyards, who are clamouring

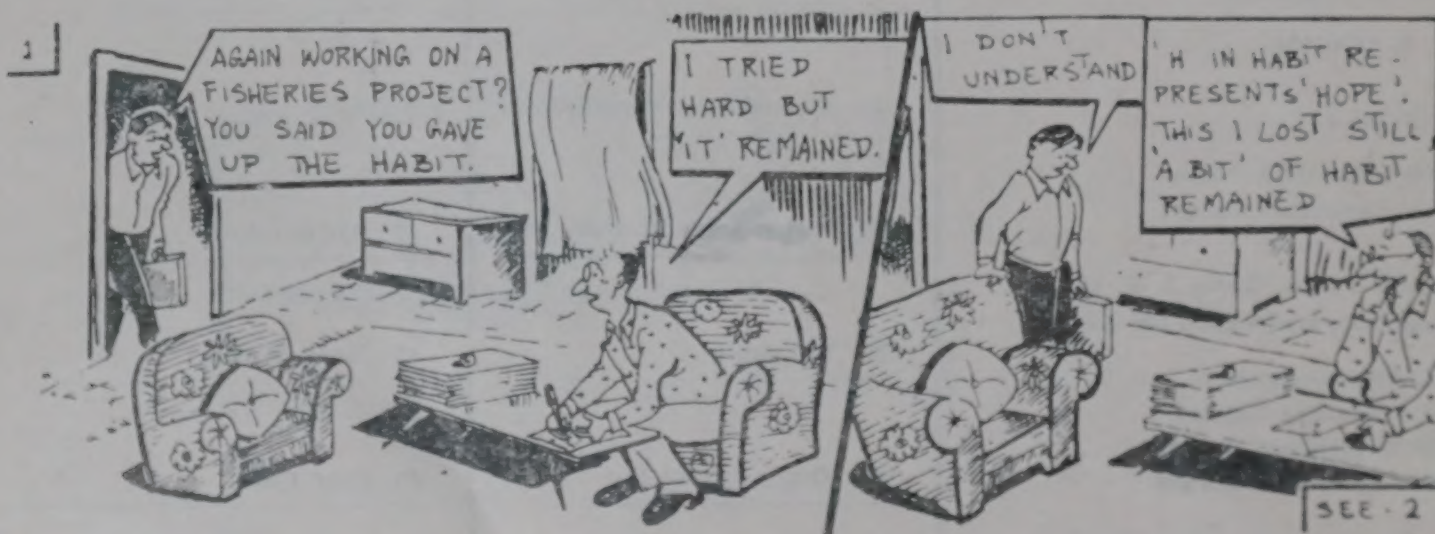
for orders. The vessels so constructed may be given on lease to fishing companies on share-catch or return-sharing basis. The ports of operation for the vessels may be identified and the Corporation may have their officers at these ports to take charge of the catches on arrival of vessels are arrange for disposal. The returns can then be shared as agreed to. The above system will definitely counteract the feelings of risks and difficulties in investments. All fishing companies can become the operational agents of the corporation.

So far as the third drawback, i.e., expertise is concerned, government can organise requisite training at CIFNET or through appropriate employment of foreign personnel.
M. Satyanarayana
Dwaraka Tirumala

Dear Sir,

It is interesting to note that hilsa is thriving in Vallabhsagar reservoir in Gujarat. The development is all the more interesting in that artificially raised hilsa fry was stocked in the reservoir.

In A.P. it is known that hilsa fry enters and thrives in certain tanks in east godavari district. Although hilsa hatching experiments over years were conducted at



Bobberlanka hatchery on Godavari river near Rajahmundry, there were never any tangible results. It is desirable that the department of fisheries, Andhra Pradesh, makes a study of the developments in Gujarat reservoirs and take similar steps to propogate hilsa, particularly in view of the construction of the barrage across the river, which will totally prevent the migratory movements of the fish.

M. S. S. Rayudu
Visakhapatnam

* * *

Dear Sir,

I congratulate you on the excellent coverage of the international conference on deep sea fishing held in New Delhi in June, in your July 1982 issue.

The Conference, so well conducted, was marred by one feature. There was no concluding session. In conferences of this kind there must be a concluding session in which summary of deliberations and recommendations of each of the sessions are to be read out and the recommendations carried by the delegates. There was no such concluding session. So much so, nobody really knew what the accepted recommendations were. The president no doubt announced the recommendations at a press conference but some of these were not even mentioned at any of the sessions. For example, many of the participants will bear with me that at no time was there any mention that a separate department of fisheries in the Ministry of Agriculture should be created. It is not known as to how you have also mentioned in your report that this was one of the recommendations.

N. Venkateswarlu (Capt.)
Visakhapatnam

Dear Sir,

In news waves of June 1982 issue of Fishing Chimes it is reported that at any given time there are about 250 foreign fishing vessels Operating inside the Indian Exclusive Economic zone, under caption "poachers go scot free" where as in the same news waves, it is also reported that about 100 foreign fishing vessels could be found operating inside the Indian Exclusive Economic zone at any given time under the heading "Taming of poachers".

Please let me know which figure is correct.

R. N. Singh
Chief Executive Officer
Fish Farmers Development Agency
Saran, Chopra
Bihar

(The estimates of 250 and 100 poaching vessels in Indian waters came from different sources and published for the information of readers. It is difficult to say which figure is correct. The fact however remains that a large number of foreign vessels indulge in clandestine operations in Indian waters.)

* * *

Dear Sir,

I have been a regular reader of your esteemed magazine 'Fishing Chimes' since past one year. Your issue of June 1982 has just come to hands.

I am happy to go through a historical article on page 43 captioned 'Glory and Challenge: Saga of Gujarat's Central Fisheries Cooperative'. However I was shocked to see the comments in para 3, page 43 reading as 'the nucleus of the department was formed by south Indians'. This statement is wholly untrue when such an article is read by one who is a witness to the fisheries development in Gujarat for all these 40 years.

In fact the fishermen of the area have still not forgotten the services rendered by Dr. S. V. Gokhle, the first Fisheries officer of the ex. state of Junagadh during the pre-independence era and subsequently in Saurashtra & Gujarat State. I have been in the fisheries field for more than four decades and am certain that there are very good sons of the soil like Sarva Shri N. C. Lacumb, Joshi, I. B. Mankar, R. B. Shah, G. D. Vasavada, I. B. Vaidya and M. M. Chhaya who were instrumental one way or the other in the fisheries developmental activities in the state. Your statement may be correct to the extent that the 'South Indians were the nucleus of the seat of power'—due to patronage received from Sri K. R. Srivastava who received his inspiration and enthusiastic support from the Gujarati administrators such as Shri G. F. Mankodi, Shri J. G. Shah, Shri Bakubhai Buch etc. now retired secretaries of the Government of Gujarat.

A. Pattani
Veraval



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The Confrontation

The International Conference on Deep Sea Fishing held in New Delhi from 23 to 25 June 1982 virtually started off in a mood of Confrontation—the government confronting the deep sea fishing industry. The Union Minister for Agriculture, Rao Birendra Singh, accused in his keynote address to the conference that none of the fishing companies furnished true facts about their operations to the government. He did not believe that the Indian deep sea fishing operations were uneconomical. When fishing enterprises of nations much smaller than India were making profits, how could the Indian companies incur losses, he questioned. The plea of the industry that high cost of diesel oil upset the economics of operations did not appeal to him. He commented that those operating chartered vessels earned 15% of the gross proceeds while providing to the government a guarantee for only Rs. 2 lakhs. Even if this was forfeited for non-compliance of conditions, it did not matter much to the companies.

It was unfortunate that the minister chose the occasion of the International Conference to give vent to his views. It is to be believed that the observations were based on a close study and not merely to pre-empt complaints from the industry that there existed serious delays in taking decisions on their applications on various matters to the government.

'PROFIT' IS NOT A DIRTY WORD

The fishing industry is the vehicle on which government has to

depend for progress. Likewise, the Industry has to depend on government for progressive and pragmatic policies in order that they may survive. The responsibility to achieve a unison between government's policies, programmes and strategies and the implementation of by the Industry rests more with the government than with the industry. While the primary motive of the government is to encourage development and economic growth, the basic objective of any fishing company is to earn profits and there is nothing wrong in this, as long as government's regulations are not contravened. 'Profit' is not a dirty word, as rightly pointed out by Mr. Appleyard during the conference.

CAN A FACT BE UNTRUE?

Fishing Industry is not different from other sectors in regard to the observation of codes of conduct and following government's regulations. One allegation of the minister was that fishing companies never presented true facts about the operations. This is something that will be questioned by every fishing company. All Companies extract particulars from their books, maintained as required to meet prescribed systems and as required under Company's Act. The particulars of catches are maintained continuously in the log books by skippers. Most of the earnings are from shrimp and these are duly accounted for in the books of the companies and that of the processing plants. Always audited particulars are furnished to the government. If government

has a doubt that any company has not presented true facts, what prevents them from verifying their records? The fact is that no company will take the risk of presenting a false picture to the government.

The minister's statement that he did not believe that the fishing operations were uneconomical, is deplorable. There is also no logic in the observation that fishing enterprises in other countries were making profits and therefore Indian enterprises also should be earning profits. Profits or losses depend on incomes and expenses. Countries with richer fishery resources and where cost of diesel oil is low earn more and spend less.

If there are profits, the normal tendency on the part of the industry is to keep quiet. Only when losses show up the industry represents. Thai vessels which operated in Indian waters till recently are stated to have incurred heavy losses. Losses in operation of several U.K. vessels forced them to stop operations. Purse seining operations in Philippine waters are reported to be under heavy losses. In countries such as Indonesia and Taiwan profits are netted owing to cheaper oil and higher returns. Fish fetches a far higher price in those countries than in India. The conditions in India are just the opposite. It is not that there are always losses. After nearly three years of bad economics of operation, the shrimp trawling operations with larger vessels have picked up this year.

THERE ARE NO SECRETS

The minister is perhaps not aware that in the fishing business, practically nothing can be kept secret, particularly regarding quantum of catches and returns. The news spreads fast. Consequently, no company can dare to furnish wrong data to the government, for the fear that, if verified with logs, and records of purchasers truth will come out. It will therefore be a sound policy, at least in the present stage of development, to encourage and not criticise the industry unduly, and to point out and devise measures to eliminate faults and not to highlight imaginary doubts and antagonise the industry. Being a sensitive field connected with catching something live from water with all attendant risks, any unjustified discouragement will have a retarding effect.

The minister's tone suggested that the private sector industry was a culprit, and that he was angry with the sector. This attitude may be the cause for the delays in the department of agriculture in the clearance of applications from the

Industry for charters etc. If this is true, the least that can be said about this is that it was an unfair approach. It is not known whether the department of Agriculture investigated into the furnishing of false particulars, if any, by any company or atleast written to them on the subject. So far as we know, nothing such was done.

WHAT'S WRONG?

The minister's statement that the companies earned 15% of returns from the operations of chartered vessels and gave a guarantee for only Rs. 2 lakhs to the government and that this is a good business, is mystifying. The companies have been following the system, exactly in accordance with the guidelines issued by the government and the permissions accorded. Can this any way be wrong? Fishing companies are there to catch fish and earn money out of them. Does the Minister feel that fishing companies should not earn money? The logic behind the statement made by the minister is very obscure. He perhaps feels that none of the companies may buy the vessels at the end of

or during the charter as stipulated by the government and are prepared to loose the guarantee amount of Rs. 2 lakhs for the reason that they have earned much more by way of 15% of returns. If so, this line of thinking must have taken shape on wrong premises. If the operations are found to be successful, the first impulse of any entrepreneur would be to acquire the vessels, for that would be much more beneficial.

The infant fishing industry depends on the government for its growth. To initiate and foster a confrontation with the industry will be a harmful exercise for the government. With a positive bent of mind, the government and the industry have to work together to achieve the ultimate objective of the development of the industry. Exaggeration of minor obstacles or faults would only cloud the main objective. The duty of the government is to guide the industry, helping them in formulating sound proposals and in their implementation with the government's clearances.

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REPORTS

6TH WORKSHOP AT DHAULI, ORISSA ON :

COMPOSITE FISH CULTURE PUNE ACHIEVES 10 TONS/HA

The sixth workshop on CIFRI's All India Coordinated Research Project on composite fish culture and fish seed production (started in 1974) was held at the Freshwater Aquaculture Research and Training Centre, Dhauli, Orissa on 1 and 2 July 1982. Reports on work carried out at various sub-centres under the project i.e. Tuticorin, Bhavanisagar, Badampudi, Kausalyaganga, Kalyani, Gauhati, Karnal, Jaunpur, Durg, Pune, Ranchi and Godhra, presented by the officers in charge of each of the sub-centres, were discussed.

At the inaugural session, Dr. V. R. P. Sinha, National Project Director and head of Dhauli Centre welcomed the participants. The inaugural address was delivered by Dr. R. M. Acharya, Deputy Director General (Animal Sciences), I.C.A.R. The Chief Guest at the workshop was Dr. B. Mishra, Vice-Chancellor, Orissa University of Agriculture and Technology. The project co-ordinator, Dr. S. D. Tripathi proposed the vote of thanks. There were four technical sessions. Session I, presided over by Mr. G. N. Mitra, covered the projects in A.P. and Tamilnadu. Dr. V. G. Jhingran presided over Session II, covering centres in Orissa, West Bengal and Assam. Session III, chaired by Mr. S. C. Hota, dealt with Haryana, U.P., M.P. and Maharashtra Centres. Dr. Dwivedi was the Chairman of Session IV, covering Bihar and Gujarat. Mr. K. H. Alikunhi chaired Session V, which was the concluding session.

MORE WELL DESIGNED EXPERIMENTS NECESSARY

In his inaugural address, Dr. Acharya highlighted the achievement of fish production of 3-10 t/ha/yr under the programme. He, however, said that there was need for more well-designed experiments involving different sub-systems initially and finally a combination of various sub-systems. Observing that most of the centres had effectively demonstrated the usefulness of the technology for fish seed production and composite fish culture, he said that most of these could profitably be transferred to the respective states, with the project retaining the centres in major agro-ecological regions. He was happy that compounded feed in the forms of pellets had been prepared by FARTC and its suitability for brood fish and fish seed rearing had been tested. Referring to problems relating to induced breeding of silver and grass carps, he advised that the relevant technology should be tested under different agro-climatic conditions.

HIGH RATES OF PRODUCTION

The reports presented by the officers-in-charge of the various centres, covering the period October 1980 to March 1982, revealed that 19 successful experiments were conducted at the 12 centres, with ten stocking densities ranging from 4000-10000 seed/ha in nine combinations with 4 to 7 constituent species. Of these, 12 trials had yielded

productions ranging from 5013 kg/ha/8 months at Gauhati to 6982 kg/ha/9 months at Jaunpur, 5063 kg/ha/10 months at Tuticorin and 10677 kg/ha/yr at Pune. The feed conversion ratios varied from 0.66 (Tuticorin) to 1.98 (Pune). The cost of production ranged from Rs. 1.11 at Tuticorin to Rs. 3.62 at Pune.

ORGANIC MANURES

It was seen that heavy doses of organic manures were used at several centres, disregarding the organic carbon in the soil. Ranchi Centre was one such instance. Where low water levels were there, it was necessary to scale down the dosage. Otherwise there would be algal blooms as had happened at Badampudi and Karnal. With mahua oil cake used as a toxicant, it was desirable to test the organic carbon content after two months of application, before determining the dosage of cattledung. It was desirable to determine the dosages once in a quarter with reference to water levels, temperature available and organic carbon content, which varied from time to time on account of unused feed, photosynthesis and respiration.

The workshop noted that no systematic studies on green manuring had been made. In this connection, studies on the use of Azolla as a green manure were suggested.

INORGANIC FERTILISERS

It was noted that algal blooms were a common occurrence in almost

all composite fish culture ponds. A suggestion was made that, daily application of organic manure and split doses of inorganic fertilisers at 10 day-intervals as had been done at Kalyani Centre, might prove to be helpful in eliminating algal blooms. As soil and water qualities at the various centres had since improved as a result of regular liming, fertilisation and feeding, pond fertilisation dosages at the various project centres needed to be reoriented.

POND DEPTH

Results obtained at Gauhati centre revealed that high rate of production was possible in ponds with water levels ranging from 1 to 1.5 m depth throughout the culture period. No water was taken into these ponds from any outside source. At Bhavanisagar, each large sized pond required 50 to 60,000 litres of water per week to make up losses owing to seepage and evaporation. The normal depth was 0.75 m which was made upto 1.0 m by weekly filling. At Pune, maintenance filling of ponds with water was resorted to, atleast once a month, in order to achieve a depth of 1.5 m and maintaining a water level of 1.0 m. The ponds at Bhavanisagar and Pune, under the system of maintenance filling produced 4125 to 10,000 kg/ha/yr.

STOCKING DENSITY

It was seen that stocking density should be decided in relation to water volume with a strong bias for minimum depth rather than water area alone. It was also considered desirable that production figures were indicated on volume basis rather than on per hectare basis.

LOW-INPUT TECHNOLOGY

Experiments conducted at Jaunpur and Durg centres had shown that

use of fertilisers alone could boost up fish production considerably. By the application of nitrogenous and phosphatic fertilisers a production level of 2 tonnes was achieved at Durg, the cost of production being 93 paise per kg. At Jaunpur a production level of 3.5 tonnes was achieved in nine months by using nitrogenous fertilisers alone, the cost of production being Rs. 1.18.

BIOGAS SLURRY

Experiments conducted by using biogas slurry as a fertiliser and also as an ingredient of feed, alone or with rice bran, yielded good results with silver carp and grass carp at Belur Math West Bengal. It was suggested that further work in this line was necessary.

FRY AS STOCKING MATERIAL

Results at Pune and to some extent at Jaunpur had shown that stocking at fry stage yielded good results. At pune 10677 kg/ha/year was achieved. At Jaunpur, while the total result could not be noted on account of floods, the fish that remained in the ponds showed very good growth.

FRESHWATER PRAWN CULTURE

Not much progress was made in regard to prawn culture. It was pointed out that further experiments on including prawns in composite fish culture were necessary, particularly as prawns were not likely to compete with the other stocked fish species as they occupied an entirely different ecological niche.

FEEDING

The feeding rates of 2-4% now being followed at the various centres were high. These rates did not take into account the size of

fish, time of the year and water volume. It was necessary to evolve feeding schedules taking the above factors into account.

PELLETED FEED

Pelleted feed with 30% protein level, supplied by FARTC, Dhauli, was tried at Jaunpur. The results could not however be estimated. Experiments with pelleted feed were now proposed to be conducted at the various centres.

BREEDING

Fish breeding was taken up at various centres, with the exception of Durg. A total of 362.59 lakhs spawn was produced. Gauhati centre alone contributed over 33% of the total production. It was proposed to intensify the spawn production programme.

CONCLUSIONS

Mr. Alikunhi suggested that targets of production may be fixed for each centre, based on standardised guidelines. However, several participants expressed the view that this was not possible, as the work was of an experimental nature. Mr. Mitra proposed that the main emphasis should be on development of pelleted feed that would be consumed by fish with minimal wastage. The feed should be such that it enabled growth of indigenous fish as good as exotic fish. This suggestion was accepted. It was also pointed out that in the reports from the various centres the nature of water sources should be clearly mentioned. It was also felt that composite fish culture was possible only in water areas where controlled culture could be carried out. It was not suitable for adoption in wild waters.

REPORT

Shift MPEDA from Cochin to Delhi Allow Larger Houses only into Deep Sea Fishing: Pleas at Bhubhaneswar Sea Food Exporters' Convention

The first ever serious attempt to demarcate the respective roles of the small and medium-scale seafoods exporters on one hand and larger houses on the other was made at a largely attended convention held at Soochana Bhawan, Bhubaneswar from June 30 to July 1, 1982. The convention was jointly organised by the Seafood Exporters' Association, Orissa, and Marine Products Exporters Association of Eastern India. Mr. B. K. Mittra, was the moving spirit behind the successfully organised convention.

Major issues that flared up at the convention were related to reorientation of policies connected with sea food processing and export, separate set-up to deal exclusively with the small and medium-scale seafood exports, and eliminating the 'unhealthy' stranglehold of larger

houses and multinationals over small and medium level processors and fishermen.

The convention, attended by nearly 500 members of the seafood exporting community from the states of Orissa and West Bengal, requested in unison for bringing in a climate for regular availability of raw materials, checking the uneconomical growth of freezing plants and easing stringent export policies that are in vogue today.

A strong plea was made that MPEDA's headquarters may be shifted from Cochin to Delhi. It was also urged that larger houses should be allowed to concentrate only on deep sea fishing, leaving exports to small and medium level exporters.

One remarkable feature of the convention was the adoption of

Dhamra, a fisherman village in Orissa by the Seafoods Exporters Association of Orissa. About 50 fishermen from the village were given an aid of Rs. 25,000. The cheque was presented by the Finance Minister Mr. Pranab Kumar Mukherjee on the inaugural day. An exhibition too was held during the convention.

According to the speakers at the convention, the small and medium seafood exporters contributed ninety percent of the India's annual marine food exports. States of Orissa and West Bengal, according to Mr. A. S. Shenoy, earned revenue of about Rs. 40.29 crores in value and exported 6,484 tonnes of marine product in quantity during the year 1981-82. India's total exports in marine foods during the same period was 70,105 tonnes in quantity which earned a revenue of Rs. 287 crores.

PERFORMANCE INADEQUATE

While inaugurating the Convention of June, 30, 1982 at Soochana Bhawan, Bhubaneswar at 6.30 p.m. Mr. Janaki Ballab Patnaik, Chief Minister of Orissa stated that eastern states had to improve their performance in exporting marine foods. He said that the western region exporters were contributing 71% of the India's total exports in marine products. Pointing out

that marine products exports from the state of Orissa had increased to Rs. 15 crores during 1981 from a mere 1.3 crores during 1975, he said that the infrastructure needed for the faster growth had been insignificant. He suggested that the Central and State Governments, fishing industry and the development agencies should put in combined efforts to achieve better results.

He said that India's largest brackish water lagoon-Chilka lake required considerable investment in infrastructure for exploitation of its vast resources.

The Chief Minister also suggested that the marine foods exports sector, while facing stiff competition in the international market, should try to overcome it by diversification of products and markets.

He commented that though there had been considerable development in the exports, the performance was still inadequate compared to the vast resources yet to be tapped.

He stressed the need for planned development of deep sea fishing and exhorted that intensive brackishwater fish farming should be undertaken. The Chief Minister said that the loss suffered by the fishing industry in Orissa during the June Cyclone was colossal and his government was busily engaged in rehabilitation operations. He said that nearly 200 mechanised boats had sustained severe losses.

BE AGGRESSIVE AND DYNAMIC

Mr. Pranab Kumar Mukherjee, Finance Minister, Government of India was the Chief Guest on the occasion. Addressing the gathering, he said that Indian fishing industry should exploit our marine resources to the optimum. He pointed out, that, while fishermen from Korea and Thailand were reaping rich harvests in our waters we were not doing the same. He stressed that this should be realised by the fishing industry. He said that though there had been tremendous growth in the marine products export it was not commensurate with the potential.

He said that considering the limited availability of land and the related problems, ultimate solutions rested in the development of marine products. He said that we had not been able to exploit even a small fraction of the resources we actually possessed. He called for dynamism and aggressiveness in marketing our marine products abroad.

He suggested that the marine products should be diversified and new markets should be explored. He commented on the Indian exporters clinging to only shrimp exports, and that too to very few



**MR. J. B. PATNAIK, CHIEF MINISTER OF ORISSA
INAUGURATING THE CONVENTION**

countries. He questioned why several other kinds of fish were not being at least tried for marketing abroad.

He observed that 90% of marine products went to USA and Japan. And 80% of these included only shrimp. He called for immediate action from the fishing industry to

come out with better ideas and methods. He said that the fishing industry should not suffer in the same way as that of jute industry. He said that jute export trade stuck to same methods for the last 100 years of its trade history and today it had become stale because of that. He warned the



**UNION FINANCE MINISTER, MR. PRANAB KUMAR
MUKHERJEE HANDING OVER A CHEQUE TO THE
PRESIDENT OF FISHERMEN'S COOPERATIVE SOCIETY
FOR THE BENEFIT OF VILLAGE DHAMRA**



**MR. R. K. MITRA, CHAIRMAN, RECEPTION COMMITTEE
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exporting community of marine products to brood over this example.

He wanted the fishing industry to incorporate the latest techniques in their processing operations and business methods and he assured all the help from the government side. He said that government was fully aware of the problems that were being faced by the exporting community. He assured that they would get a fair deal.

"Mr. P. Sahu, M.P., President of the Convention spoke elaborately spiced with emotion on the relief work to be undertaken for the victims of cyclone in Paradeep port."

SUCCESS STORY

Earlier, welcoming the gathering, Mr. R. K. Mitra, Convener of the convention said that the two decade history of India's seafood trade was a story of success. Initially a dry fish exporter, India had grown into world's foremost country in shrimp exports and other frozen foods such as froglegs, frozen lobster tails, shark fins, fish maws to markets in USA, Japan, Hongkong, Singapore, European countries, Australia and West and

South East Asian countries.

He said that in the success story, the small and medium seafood exporters had played a major role. They contributed 90% of the India's marine food exports. The small and medium scale seafoods exporters had played a significant role in actually building up the export trade. However, he said, the picture now was gloomy for the small and medium scale seafood exporters. Fluctuating prices of shrimp, increased cost of buying, rise in the maintenance cost and low catches had led to unhealthy competition in acquiring raw material.

RAW DEAL

Mr. P. A. Dural, in his keynote address, said that a large group of seafood industries were starving for raw material. He said that the area of procurement and production of raw material was the most neglected when compared to the installed capacity of the processing plants spread throughout India. On financing of the marine food exports, he said that the financing institutions were following a stereotyped policy. He expressed that

the financing institutions, banks and other organisations should treat marine food export industry with special attention since the product was very much different from those of other exporting commodities. He said that availability of raw material for this industry was completely at the mercy of nature. The fishing areas, and the time of fishing were not coordinated, he felt. He criticised that, though the seafood exporting industry was started by the small and medium scale entrepreneurs, the multi-nationals and large export houses had invaded the arena causing severe economic upsets. Mr. Dural wanted that government should make provisions for enlarged REP licences, cash incentives and other benefits to make up the losses, when an exporter lost in diversification of products and markets. He said that though the idea of diversifying the products and selling them in new markets other than traditional ones was good, there were several problems that minimised the profit viability. He said that for diversifying the products, the exporter had to look for new raw material and, in turn, when they went to new markets other than traditional ones the money realisation was much less, sometimes even severe losses.

FACILITIES NEEDED

He called for an intensified drive on the part of the state governments in providing the infrastructural facilities such as landing platforms, peeling sheds, ice plants, bunkering facilities for trawlers, necessary navigational directions and subsidised diesel oil supply. He said that though Marine Products Export Development Authority had been striving in this direction for long, it was time for the state governments of all the coastal states also to come forward to help the exporters.

Mr. Durai, while pointing out the stagnation in the production of raw material said that India should go into joint ventures and collaborations. He said that India was lacking in proper technical know-how right from high sea fishing to product presentation.

He said that any marine product would sell well in markets in Japan. He stressed that our presentation of products in the international markets had to improve a lot. He complained that monopoly houses were spoiling the on-shore business. He said that several monopoly houses, without any productions of their own were carrying on on-shore freezing and exporting. He said that with that kind of operation they were creating unhealthy competition for small and medium scale seafoods exporters. He requested that this should be immediately stopped.

IPQC SCHEME

On quality of products Mr. Durai commended the efforts rendered by the Marine Products Export Development Authority and the Export Inspection Agency. He said that these two institutions had helped the exporting industry in improving the quality of the products. However, Mr. Durai was not satisfied with the EIA's IPQC scheme. He said that this scheme, implemented in coordination with MPEDA had laid down unrealistic conditions for starting a processing plant. These conditions were also vague, he accused. He stressed that existing procedures in establishing processing plants should change.

UNDER SINGLE BANNER

He felt that all the exporters in the country should come under one banner instead of existing regional associations. He said that with one big association their grievances could be attended to by the government effectively.



A SCENE OF THE DELEGATES

On July 1, 1982 the convention discussed export matters in three sessions, namely, Finance Session, business session and plenary session.

SEA WEEDS

Before the sessions, the Governor of Orissa, Mr. Ragunath Misra, addressed the gathering. In a delightful speech, he said that he was not a non-vegetarian and all the matters discussed there were related to the non-vegetarians. However, he said that in the larger interest of marine products he would like to see the vegetarian products of the sea developed. He suggested that sea weeds which were edible and rich in nutrients for human consumption should be developed by the fishing industry of India. He said that the convening of the convention was a good idea conceived by the small and medium scale exporters. He said that a thing well begun was half done. He felt that traditional fishermen should be given a fair deal.

POOJARI GRACEFUL

Mr. J. Poojari, Deputy Minister of Finance, Government of India,

joined the convention a little late. He said that he could not attend the convention in time because of the wrong information given to him.

He addressed the gathering in a graceful manner and touched on the subject in all its aspects. He said that what India needed immediately in the field of marine export development was the diversification of products and a search to widen the export market. He emphasised the need for intensive exploitation of India's exclusive economic zone. He asked the fishing industry to rise to the occasion. He said that culture technology needed larger attention.

The finance session was chaired by Mr. J. Patnaik, Managing Director, IPICOL, and the speakers were Mr. Bijoy Das, Mr. J. B. Bhattacharya, Mr. R. K. Mittra and Mr. S. C. Mullick.

BRANCH MANAGERS ARE THE HURDLE

Mr. Bijoy Das and Mr. J. B. Patnaik felt that financing of small and medium scale sea food exports should be on easy terms

said it should be provided without delays.

Mr. Whitley said that the matters concerning export of sea foods needed a greater understanding and more accommodation from the financing institutions. The problem, he said, was not under the control of producers. They were under the sway of branch managers of banks. This situation was deplorable he said. He accused that no consideration was shown in favour of small and medium scale seafood exporter. Diversification of seafoods was a good idea, but it needed more understanding from the financial institutions.

PARADEEP IS PROMISING

Mr. R. K. Mittra was objective in his views. He said that there should be better infrastructure facilities for the exporters. He said that the situation in Paradeep was better now. Two years back there were no ships calling at the port suited for seafood shipments, but now there had been considerable traffic, he said. Seafoods being a sensitive commodity and highly perishable the competition in export market was rather tough, he said. He felt that financiers of this export business should have better knowledge of the intricacies in the business. He sought that seafoods should be treated on a different footing altogether and separate terms should be framed. Mr. Mittra said that 90% of the exports of seafoods was contributed by the small and medium scale exporters in India. Banks and other financing institutions should have specialised officers to deal with seafood exports, he said.

Later, Mr. Babu, Deputy General Manager, State Finance Corporation and Mr. D. Das spoke on the subject.

QUALITY AND REPUTATION

The quality control session was chaired by Dr. B. Cockfield. Speakers were Mr. A. N. Ash and Mr. Amarendra Das. The session was addressed by Mr. D. C. Majumdar, Director, Quality Control and Inspection, Government of India. He said that though the exporting community feels that the rules and regulations governing the marine products exports to be a bit stringent, these were necessary to safeguard the quality and reputation

They sought for better technical guidance and help in establishing cleaner processing and packing methods. The business session jointly dealt with the trade situation of the exporting industry and the problems relating to the regulation of the production. The session was chaired by Mr. R. N. Das, Director, Marine Products Exports Development Authority.

The speakers were M. S. Hota, D. Sarin, T. P. V. Nair, S. K. Banerjee and Bijoy Das.



GEORGE MAIJO STALL AT CONVENTION'S EXHIBITION

of the Indian products. He said that now Indian seafoods were better received in the international markets because of the quality maintained. He asked the industry to keep up the reputation.

Speakers Mr. A. N. Ash and Amarendra Das felt that the fishing industry also commended the efforts made for the betterment of quality and these were accepted.

CHILKA CALLS FOR CONSERVATION

Mr. Hota, while explaining the production in the state of Orissa said that there were 25,000 ha of land fit for development of brackishwater fish farming in Orissa. He was not satisfied over the matters relating to the organisation for the development of fisheries of Chilka Lake. He

said that the biggest lagoon in the country was being subjected to depletion of stocks due to massive hunt of juveniles. He said that there was no law to prevent the fishermen from doing so. He said that depletion in this lake was at a dangerous level. He said that there were no conservation measures introduced. "We can only request them not to kill juveniles but often it goes unheeded" he said.

Mr. Hota requested for immediate steps to formulate legislative measures to prevent the practice of unplanned exploitation of fisheries of Chilka lake. He said that several meetings were held with the fishermen engaged in the massive prawn hunt in the Chilka Lake area and they were told not to indulge in uneconomic practices. But the fishermen refused. They said 'Our product is being sold in the market. Why should we stop catching prawns. Whether they are juveniles or adults we see no reason to stop our daily job', he added.

Mr. Sarkar explained that in West Bengal bheris were the main production centres. Traditional paddy cultivation alternating with fish culture had been successful in the state, he said. In regard to mechanised boats, he said that there could not be many due to rough sea conditions on the coast of West Bengal. Many had no capacity to have larger vessels, he said. Production mostly depended on culture, he said.

He added that the construction of Roychowk fishing harbour had brought hopes among the boat operators. When Digha too became operational, he felt that fish production in the state would go up.

ACCURATE SURVEY REPORTS NEEDED

Mr. T. P. V. Nair said that our exports of seafoods should reach a

target of Rs. 1,000 crores mark by next ten years. He said there should be a body to provide with the accurate survey reports on the availability of stocks. He said that even at this late stage we did not yet have accurate survey reports on pelagic and demersal fishes that could profitably be exported, particularly from Orissa. He said that in spite of continued complaints of non-cooperation, absence of assistance from the officials and non-officials concerned, dearth of much needed infrastructural facilities, existence of permanent restraints by way taxes, cess etc., the seafoods exports had made progress to reach the impressive figure of Rs. 287 crores in 1981-82.

He felt that, though the bacteriological standards were the same for all export inspection agency officers, evaluation of the organoleptical qualities of sea foods processed and exported vary very much according to the individual officers. On IPQC, he said that raw materials should be rejected instead of the finished goods. He said that IPQC rejected finished goods awaiting shipment for varied reasons. He felt that there should be coordination among the MPEDA's quality control laboratories, EIA and other fisheries research institutions in improving the quality of sea foods, but this had not been there.

BLOCK LISTING IN USA DUE TO LARGE HOUSES

At the plenary session, Mr. S. R. Das said that the convention was meant to demarcate the areas of operation between small and medium scale exporters together on one hand and of Larger houses on the other. He said that from 1975 onwards there had been severe competition from the larger houses in seafoods exports. He said that difficulties were centered round availability of raw material

and absorption of products in the international markets. He said that blocklisting of Indian products in USA was due to larger houses. He requested for cold storage facilities at Paradeep.

SHIFT MPEDA HQ TO DELHI

Mr. R. K. Mittra said that landings of seafoods had reached all time high this year. Ninety percent of the exports had been made by the small and medium scale seafoods exporters. Contribution of larger houses in this was very small. He asked for special procedures for financing the seafoods exports. He asked for increased amount of liquid cash assistance. Deep sea fishing operations by the larger houses should be made complimentary to the efforts of small and medium scale exporters. He said that larger houses should not be in the field of exports which could well be dealt with by the small and medium scale seafood exporters.

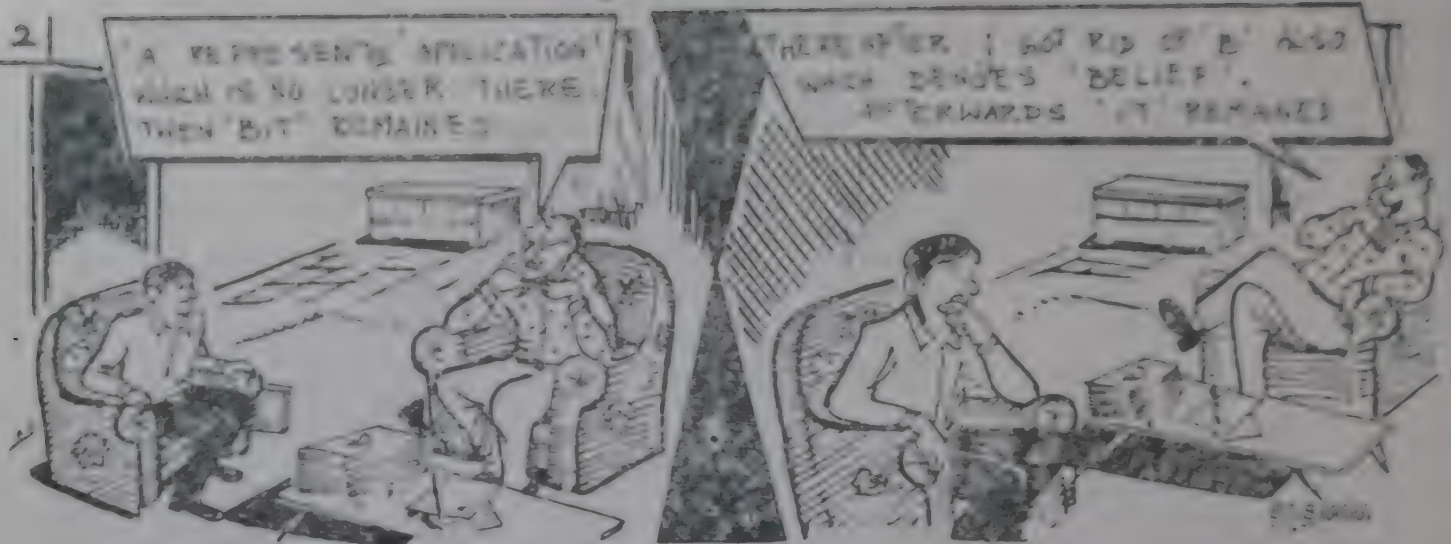
NEED FOR EXCLUSIVE ATTENTION

He said that the time had reached for seafood export industry to have exclusive, closely coordinated and better understanding with those in authority presiding over matters of seafoods exports. While stating that MPEDA had achieved significant success, this would be much more if the headquarters of MPEDA was shifted from Cochin to Delhi. He wanted the authorities concerned to give serious consideration to this.

He also suggested that small and medium scale sea food exports matters should be entrusted to a separate unit in the Ministry.

Mr. Durai said that there had been irrational growth of freezing plants all over the country. Due to unplanned growth many of them were falling 'sick'. He accused that

2



larger houses and multinationals were creating havoc deploying their rich resources. He said that they were trying to suppress small and medium scale seafood exporters. He stressed the need for shifting the headquarters of MPEDA from Cochin to Delhi. He asked for the reorientation in the functioning of MPEDA. He suggested that seafood fairs conducted by MPEDA should be held on east coast

instead of always on the west.

Mr. S. V. Patil, Minister of State for Commerce, Government of India while delivering the valedictory address said that he fully understood the matters relating to the small and medium scale seafood exporters. He lauded the efforts being made by them in keeping the nation on top in the seafoods exports arena. He said that the

problems of the small and medium scale exporters would be given due consideration in his ministry. He assured that they would be given ample scope to develop in their business.

Mr. Kishore Chandra Patel, Minister for Industries, Government of Orissa was the Chief Guest. Mr. Nilendu Halder proposed vote of thanks.

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Third All India Seminar on Ichthyology Feels Research should have Immediate Application Prospect

VIJAY

'Basic research is important. But it should be carried out in the field of fisheries, only when the results could be applied to the field immediately. Fish is the cheapest protein food available in our country. Research should be oriented towards betterment of the situation in relation to fish growth, management and controlling of the ecological environment. Therefore, India could no longer afford to spend time on 'luxurious research'. The results of research have to go to the fish farmer giving him the best possible results,' said Dr. S. C. Dey, Director of Third All India Seminar on Ichthyology held at Dr. Birinchi Kumar Barua Hall, Gauhati University, from July 26 to 29, 1982, under the sponsorship of university grants commission.

Dr. Dey, Head of the department of Zoology, University of Gauhati has organised the seminar on the main theme of applied research in the field of ichthyology with particular angle on the north eastern region of India where fish supply is coming down at an alarming rate. A kilo of good variety of fish is sold at the rate of Rs. 25 40/-. And even at this rate the supply is not adequate. Scientists drawn from all over India who have specialised in different fields of ichthyology have spent four valuable days at Gauhati University, discussing matters relating to fisheries which needed immediate solutions. During the seminar an atmosphere of give and take prevailed among the younger generation of scientists, while the elders spared on one in criticising and giving guidance where it needed. The star performer was Mr. G. N. Mitra, adviser to the Government of Orissa on fisheries and an acknowledged expert in the field.

Dr. S. Dutt, head of the department of marine living resources, Andhra university, Professor Emeritus and President of Indian Society of Ichthyologists, Madras; and Mr. J. C. Malhotra, Ex-head of Reservoir and Lacustrine Division CIFRI, Allahabad gave informative lectures on the state of ichthyology in the country today.

Other giants in the fisheries research and applied ichthyology like Dr. P. V. Dehadrai, Fishery Development Commissioner, Government of India; Mr. H. P. C. Shetty, Director of Instruction, College of Fisheries, Mangalore and Dr. A. V. Natarajan, Director, CIFRI, who were expected to attend the seminar, could not make it.

The Academy of Ichthyology, Modinagar, during the seminar, has awarded a medal to the scientist who presented the 'best paper'. It was bagged by Miss. Anjali Sharma, a research scholar from the University of Gauhati.

'A breakthrough is yet to be achieved' said Dr. P. S. B. R. James in his inaugural address at the Seminar. Dr. James said that fish production in the North Eastern Region of India was woefully low, although the region had vast natural fishery resources and adequate technology was available. He hoped that the seminar would evolve better methods in relation to this region. He said that the magnitude of the fishery development potential in the region is great. Mighty rivers, and vast cultivable areas were just waiting to be exploited. Though some of the modern technological methods had been applied for betterment of the production in the region, he said that there was much to be done. According to him about 90% of the potential area was left unused. Dr. James also pointed out that there was a great deficiency in seed production in the region. The mighty riverine fisheries were being marginally exploited, he said.

Dr. S. C. Dey, in his introductory address, said that the participants in the seminar were expected to orient their presentations in relation to the North Eastern Region of the country. He hoped that several useful conclusions would emerge out of it. Dr. J. M. Chaudhury, Vice-Chancellor, Gauhati University who presided over the function said that he was happy that the seminar was being conducted at his university. The Zoology department deserved credit for organising this seminar



**DR. S. C. DEY AND DR. V. G. JHINGRAN
ADDRESSING THE SEMINAR**

in the field of Ichthyology which directly related to the life structure of the people of Assam and neighbouring states. It was for the first time that a seminar on all Indian level was being organised in the field at the University of Gauhati.

Dr. B. Chaudhury, Head of the Department of Physics, Gauhati University welcomed the gathering.

THERE IS EVERYTHING IN A NAME

Dr. A. G. K. Menon, Professor Emeritus, and President of Indian Society of Ichthyologists, Madras in his keynote address explained the systematics of ichthyology. His address gave a broad outline of ichthyology from 384 BC to modern period. While explaining the importance of taxonomy in biological research, he said that it would be faulty if it was not based on sound taxonomic principles. He said that identification and classification of organisms on biological principles was very much important in relation to statistical work. It was

basically necessary to establish the absolute magnitude of any given population of different species, he said. Without the relevant studies he said that even excellent biological observations would be rendered useless. There was everything in deciding a name to any particular species, he stressed.

He said that phylogenetic relationship should be exemplified in biological classification. Arbitrary grouping of units, Dr. Menon said, would lead to loss of information about phylogenetic relationship and controvert the purpose of biological classification. He said that lack of evidence concerning extinct organisms, ignorance about the direction of evolutionary trends and rate of evolution had become a major stumbling block in adapting a biological classification. He said that skeptics always were critical about the attempts being made on identification of unknown species. But the method of deciding the factor with the help of genetics, cytology and behaviour of the species had been useful in giving clues to the origination. He said that taxonomy in fisheries

was very important in the development of fisheries as whole.

'AQUAPLOSION'

Dr. V. G. Jhingran, Ex-Director, Central Inland Fisheries Research Institute gave an elaborate picture on the past, present and future of the freshwater aquaculture in India. Dr. Jhingran was the only recipient of Padmasree in the field fisheries and he coined the term 'Aquaplosion', to denote a breakthrough in fish production in abundance.

He said that there was a global upsurge in aquaculture development in the last few years. He said that operational difficulties brought in heavy constraints in the capture fishery sector. Therefore, there had been a natural bent towards culture fisheries all over the world, he added. He said that India had developed considerably in the field of aquaculture for the past few years. He further said that major breakthrough was achieved in seed production by induced breeding and added that India was one of the few countries in the world to have achieved tremendous results in breeding chinese silver carp through the method of hypophy-sation. And Delhi University's success in breeding by use of synthetic steroids was significant, Dr. Jhingran said.

The scientists had evolved better methods in sustaining the survival rate to the maximum through improved hatchery system, he said.

Yet another success achieved in the Indian fresh water fish culture, according to Dr. Jhingran, was the development of composite fish culture. He said that farmers could reap rich harvests through this method.

Mr. Ahmed, Director of Fisheries, Government of Assam proposed vote of thanks.

The seminar was organised in three sessions: Fisheries; Fish Ecology, Limnology and Taxonomy; and Fishery Biology.

The first session, 'Fisheries' was chaired Mr. G. N. Mitra, Adviser fisheries, Government of Orissa. Dr. K. C. Jayaram, Deputy Director, Zoological Survey of India, Calcutta gave the keynote address.

MECHANISATION

Dr. Mitra said that composite fish culture originated in Cuttack and the technology had been giving amazing results. He felt that mechanisation should be introduced in the large scale fish farms. He said that this would save the problems of skilled labour and would provide precision to the work. He said that reducing the investment and aiming at larger returns should be main approach in preparing plans for fisheries development. He felt that this had not been worked out so far, particularly in relation to the large scale fish farming, where the above mentioned approach was called for.

He said that much research was yet to be done on fish farm engineering, special equipments, diseases, fish feed and exploitation. However, he felt that there had been a considerable achievement made by the applied research in terms of composite fish culture, production of quality seed, control of weed fish and weeds and breeding of cat fishes.

He recommended that portable dredgers be used for reclamation of large unused water logged bodies such as bheels. He said that unless an intensive effort was made with the help of mechanisation to develop these bheels the very purpose of plans for development of fisheries of bheels would be defeated. He said that in a state like Assam there was a severe shortage



From L. to R. DR. A G K MENON, DR. DAS, DR. JHINGRAN, VICE-CHANCELLOR DR. J. M. CHOWDHURY, DR. P. S. B. R. JAMES

of labour for manual operations. Owing to this, there was an urgent need for reclamation by dredgers. He added that fish farms should have their own breeding and fish feed units. The costs should have

to be reduced to make the operations economical, he said.

Dr. K. C. Jayaram spoke on the introduction of exotic species into native habitats and discussed the



MISS ANJALI SHARMA, PRESENTING HER PAPER AND RECEIVING ACADEMY OF ICHTHYOLOGY MEDAL FROM DR. V. G. JHINGRAN



From L. to R. DR. O. P. SAXENA, MR. G. N. MITRA, DR. D. P. MOTIRAMANI AND MR. AHMED

importance thereof in positive and negative terms.

About 21 papers were presented at this session by the following scientists: Mr. G. N. Mitra, Fisheries Advisor to the Government of Orissa; Dr. J. C. Malhotra, Senior Scientist (Reids), CIFRI, Barrackpore; Messrs D. Kar, Department of Zoology, Gauhati University; R. A. Gupta, Riverine and Lacustrine Division, CIFRI, Allahabad; P. Nath, Department of Fisheries, Government of Arunachal Pradesh; Dr. K. C. Jayaram, Deputy Director, Zoological Survey of India, Calcutta; Messrs J. V. H. Dixitulu, Editor, Fishing Chimes, Visakhapatnam; N. Sen, Department of Zoology, Eastern Regional Station of ZSI, Shillong, Meghalaya; K. L. Sehgal, CIFRI, Barrackpore; Y. Rama Bai Devi, H. Tombl, and W. Vishwanath Singh, Department of Life Sciences, Manipur University, Imphal; R. N. Sethi and S. P. Singh, CIFRI, Allahabad; R. N. Mananta, Technical Officer, Fishfed, Assam; M. C. Barua, Research Officer, Fisheries, Assam; K. P. Sharma and A. P. Tyagi, Rajasthan, Department of Fisheries, Surajgarh; D. N. Barikakur and S. K. Ghosh, ICAR, Shillong; Manindra Das, Department of Zoology, Gauhati Univer-

sity, A. N. Bhattacharya, Chief Executive Officer, FFDA, Darrang, Tezpur.

Special speakers were J. C. Malhotra, A. S. Shenoy, Deputy Director, Marine Products Export Development Authority, Calcutta, C. K. S. Rao, and H. N. Agarwal.

J. C. Malhotra spoke extensively on Hilsa *ilisha*. He revealed several factors relating to propagation and culture of hilsa.

Mr. A. S. Shenoy, Deputy Director, MPEDA, Calcutta spoke on the promotional activities rendered by his organisation on Prawn culture all over India, and on the matters relating to the development of fish culture.

While observing on the work being done by the scientists in India he said 'Unless you have a definite projection, please do not push it on entrepreneurs'. His advice was well taken in the seminar.

Mr. S. Agarwal provided the seminar participants with the most enjoyable lecture on his experiences as an angler for the last three decades all over the world. He heads the Assam Anglers Association.

The second session was on Fish Ecology, Limnology and Taxonomy. It was chaired Dr. P. B. S. R. James, Assistant Director General for Fisheries, ICAR, New Delhi.

He said that most of the information on fishes was available only from the standard text books and papers written by eminent scientists. He noted that during the last three decades India had contributed considerably in identification and classification of the fishes. He said that all the aspects of fisheries development depended on the information the information gathered and processed and standardised by the scientists.

TEMPERATE AND TROPICAL SPECIES

Prof. S. Dutt, Head of the Department of Marine Living Resources, Andhra University, Visakhapatnam, in his keynote address to this session, gave a comprehensive lecture on the behaviour of fish species from tropical and temperate regions of the world. He said that species from temperate regions had a longer span of life, larger production potential, definite migratory habits, definite feeding and breeding

grounds, had shorter spawning seasons and species were far less in relation with these species from tropical regions. He said that fishes from tropical regions had almost an opposite nature compared to those of temperate regions.

He said that our management methods should take these factors into account while planning on exploiting them. He added that our exploitation methods should be oriented towards their life structure. Even the methods of exploitation should be based on conserving the species rather than overfishing them. Prof. Dutt was the man who predicted the depletion of stocks off Visakhapatnam coast during the later seventies. He said that he pointed out several glaring mistakes committed by the fishing industry in conducting their operations. The use of nets and other means of fishing by them were severely criticised by him but the warnings went unneeded. He had demanded that the fishing industry should impose self regulatory means to conserve the stocks so that they could survive for longer periods. He was proved right. Today there were no profitable grounds left for mechanised boats off Visakhapatnam coast.

Special lectures during this session were delivered by Dr. A. G. K. Menon, Prof. O. P. Saxena, and Dr. N. C. Dutta. Papers were presented by Prof. S. Dutta, Dr. A. G. K. Menon, M. M. Goswami, P. Sitaramanjaneyulu and Dr. Y. Radhakrishna, Department of Zoology, Nagarjuna University, Nagarjunasagar; Messers T. C. Deka and A. Dutta, Department of Zoology, Gauhati University; M. Ramasethaiah, Department of Marine Living Resources, Andhra University, Visakhapatnam, A. Choudhuri and S. Choudhuri, Department of Zoology, University of Calcutta; B. Lahon, Assam Fisheries Develop-

ment Corporation, Assam; L. D. Chaturvedi and Avinash Chandra, Department of Zoology, Hindu College, Moradabad; Sudhir Vasada, Surat; Miss Anjali Sharma, Department of Zoology, Gauhati University; Miss A. Rupavathi, Department of Zoology, Nagarjuna University; and Miss N. C. Nivedita Devi, Department of Zoology, Gauhati University; Dr. K. Durga Prasad, Nagarjuna University; Yugaraj Singh Yadav, ICAR; N. Mandal and A. Dutta, Dr. K. C. Jayaram, Dy. Director, ZSI, Calcutta; S. P. Biswas, S. A. K. Naser and K. Chatterjee, Department of Zoology, North Eastern Hill University, Shillong; K. Priyosakhi Devi, Manipur University, Imphal; Vijay Kolekar, R. K. Singh, ICAR; T. Venkateswarlu, ZSI, Madras; K. Ramadevi and M. B. Raghunathan, ZSI, Madras; Ranjana Saxena, DAV College, Muzzaffarnagar; G. S. Das and S. Shahoo, NEH University, Shillong.

Third session was held on Fishery Biology, at the Assam Agricultural University auditorium hall.

DR. MOITRA & GONODOTROPHS

It was chaired by Dr. D. P. Motiramanai, Vice-Chancellor, Assam Agricultural University. The keynote address was delivered by Dr. S. K. Moitra, Professor, Zoology, Burdwan University. His keynote address was on Gonodotrophs. He gave an elaborate lecture on his ten year research in the field which was found to be informative and revealing.

Dr. Motiramani said that research in fishery biology had made considerable headway in our country and he added that even the agricultural universities all over India were taking up this subject very extensively.

Special lectures were delivered by Dr. K. C. Bose, Pro Vice-Chancellor, Ranchi University,

Prof. O. P. Saxena, President of Academy of Ichthyology, Modinagar and Dr. K. C. Pandey, Professor, Department of Zoology, Institute of Advanced studies, Meerut University.

Papers were presented by Dr. S. K. Moitra, Department of Zoology, Burdwan University; Dr. K. Gopal Rao A.P. Agricultural University, Kakinada; P. C. Mahanta, CIFRI, Gauhati; Messrs U. C. Goswami, Gauhati University, S. Bhattacharjee, Pragjyotish College, Gauhati; Mrs. Subrata Sharma, Cotton College, Gauhati, Mrs. Geetha Basumathari, Pragjyotish College, Gauhati, and J. Kailta, Gauhati University; O. P. Saxena and Aditya Parashari, M. M. College, Modinagar; M. Sengupta, M. Das, D. K. Sharma, Gauhati University; Biswanath Mitra, Papia Pal, Santiniketan, West Bengal; S. C. Pathak, Y. S. Yadava, Central Unit for Air Breathing Fisheries, Gauhati; H. Duara, Asst. Information Officer, State Fisheries Department, Gauhati; G. M. Sinha, Burdwan University; Arun Kumar, Shantiniketan; S. K. Moitra, Burdwan University; M. Rashad-Ul-Islam, S. George Michael, J. R. B. Alfred, NEH University, Shillong; Ranjana Darbal, L. D. Chaturvedi, Hindu College, Moradabad; A. Hassen, C. R. Maity, T. Midya, S. K. Ghosal, G. Majumdar, Burdwan University; R. M. Saxena, DAV. College, Dehradun; T. Ankamma Rao, Dr. S. V. Sharma, Nagarjuna University; Anjana Gupta, Biswanath Mitra, Shantiniketan; B. D. Joshi, T. Sharma, Kumaun University, Almora; S. S. Dhillon, A. K. Gupta, Department of Zoology, Punjabi University, Patiala; Amita, M.M. College, Modinagar; M. P. Singh Kohli, CIFRI, Gauhati.

The summary session headed by Dr. V. G. Jhingran resolved that there should be coordination between basic and applied research.

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The following were the other resolutions.

Basic research on taxonomy, nutrition, reproduction, biology, pathology, genetics and diseases should be intensified.

A body should be set up for the better coordination between the basic and applied research.

• There is an urgent need for development of water resources because situation in states like Assam is fast deteriorating. Research should be outlined in this direction.

Seminars of this kind should be organised every year regularly with particular attention towards the region where seminar would be conducted.

Other resolutions were based mainly on the fishery development in the North Eastern Region of India. It was stated that wherever

there was a possibility beels should be made operational for the development of fisheries. The organisations concerned should form coordinated plans in this direction. Composite fish culture should be intensified. Seed production should be augmented commensurate to the farm potential. Systematics of the aquatic organisms should be prepared by the Zoology department of the University of Gauhati and other organisations in the region. Endangered species like Mahaseer should be conserved. Nationalised banks should come forward to finance fish farmers. Assam Fisheries Development Corporation should undertake development of beels through private entrepreneurs on subsidy basis. It was agreed by all the participants that fishery development should be taken up in terms of FFDAs which had been proven successful all over the country.

In the evening of 30th July, the final day of Seminar, a colourful function was held in the BKB auditorium. A medal was presented to Miss Anjali Sharma, research scholar from the Department of Zoology, Gauhati University for 'Best Presentation' of seminar paper. The medal instituted by the Academy of Ichthyology, Modinagar was presented to her by Dr. V. G. Jhingran.

In the valedictory address Mr. G. N. Mitra offered his assistance to the state of Assam to the best of his capability. Mr. S. Nath proposed vote of thanks.

Several volunteers worked very hard during the entire course of the seminar. They took care over 100 delegates and assisted them in various ways. Everyone among the delegates were very much happy at this and lauded their services.

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Krishimela Organised by All India Radio, Mangalore

Dr. P. KESHAVANATH

All India Radio, Mangalore organised a Krishimela at C. V. Nayak Hall recently in collaboration with the College of Fisheries, Mangalore and syndicate Agricultural Foundation, Manipal, with a view to disseminating the knowledge recently gained on various aspects of agriculture, to farmers. The krishimela was inaugurated by Dr. N. G. Perur, Vice Chancellor, University of Agricultural Sciences, Bangalore. He dealt with the problems faced by the farmers of Dakshina Kannada, a paddy growing district, and advised the farmers to go in for composite farming for better returns. He called upon farmers to take up fish culture and said the College of Fisheries, Mangalore, the first to be established in the country could give all the necessary technical assistance in this regard. Recalling the major achievements of the College, he stressed the need to extend the recently acquired knowledge in the field of capture and culture fisheries, for the benefit of fishermen and fish farmers.

Mr. M. N. Rao, Executive Director of Syndicate Bank, presided. In his talk, Mr. Rao outlined the leading role played by the bank in giving financial assistance for agriculture, especially in the fisheries field for the purchase of boats and other

fishing equipments. He desired that fishermen should take to modern methods of fishing so that they can contribute better to the overall fish production and at the same time improve their lot. Mr. Rao also inaugurated the exhibition organised on the occasion. The College of Fisheries participated in a big way in the exhibition and its section attracted major attention from the visitors.

Of the three sessions of the seminar, one session was devoted for fisheries and it was chaired by Professor H.P.C. Shetty, Director of Instruction, College of Fisheries, who also moderated. In all, three lead papers were presented during the session, by Professor P. K. Salian, Professor of Fishery Engineering, College of Fisheries, Mr. M. Abdul Hameed, Deputy Director of Fisheries, Government of Karnataka and Mr. B. Laxmana, Fisheries Development Officer, Syndicate Bank. In the discussions that followed, invited fishermen and fish farmers took part.

Professor Salian dealt with the recent developments in fish catching methods and on matters relating to the increase in production through mechanisation. He said introduction of double rig trawlers could further improve production by 30 to 40%. He

stressed the need for diversifying fishing efforts, instead of concentrating on prawns, which could be achieved through midwater trawling. However, no headway could be made in this regard since it involved electronic equipments, he added. Karnataka which started with 2 purse seiners in 1975, had a fleet of 280 at present and these helped in almost doubling the marine catches, though they are operated only with the help of winches as against those operated using power blocks in the west. For gill netting too, power blocks should be used. He desired that purse seines should have ice or chilled sea water arrangement in the fish-hold in order to maintain the quality of the fish caught. He suggested deep sea fishing using big vessels, use of power blocks, use of electronic equipments and scientific training of fishermen as means to increase fish production.

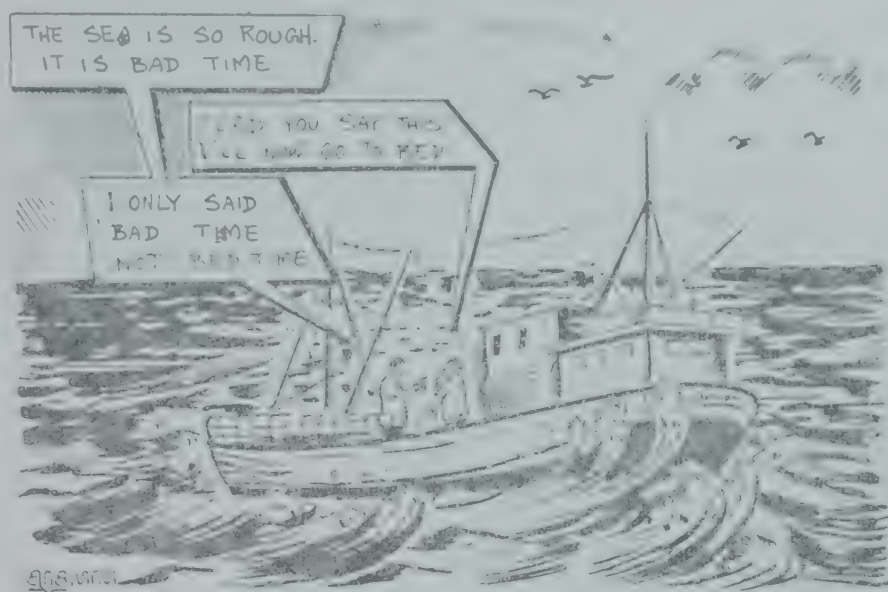
Mr. Abdul Hameed explained the various fisheries developmental activities taken up by the Government in the field of marine fisheries and the present status of fisheries industry in the State. Fish landing jetties, fishing harbours, mechanisation of boats, introduction of purse seines, fitting outboard engine to boats for gill net operation were the major achievements, he said. He also outlined the progress made by the Department of Fisheries in the freshwater sector, specially in producing quality seed of Indian major carps through hypophysation, fish culture in tanks and ponds through co-operatives and Panchayats, setting up of Fish Farmers Development Agency and developmental measures initiated with regard to selective reservoirs.

Mr. Laxmana said 30,000 people of Dakshina Kannada coast were engaged in fisheries and nearly 10,000 boats, both mechanised and

non-mechanised were operating along the coast. Banks co-operated in implementing the programmes of the fisheries department. He called for speedy disbursement of loans to offset price increase, manufacture of cheaper fishing equipments, production of low cost boats and new innovations in nets and fish catching methods, extension of loan repayment period to 7 years, simplification of insurance rules, setting up workshops in ports for the repair of fishing boats, selling diesel oil to fishermen at control rates, measures to avoid competition between traditional fishermen and those engaged in mechanised fishing and radio bulletins giving information regarding the availability of fish and the

quantity landed daily, etc. There was need for the fisheries department, banks, research institutes and

fishermen to come together and make fisheries a profitable profession, he concluded.



Indian waters abound in fish and Britannia has entered fishing as part of the national policy to organise a more scientific exploitation of resources in future. Catches are landed in seafresh condition and speedily processed to preserve the natural product quality.

The Britannia fleet of 6 trawlers, include two modern 23 metre steel vessels imported from Mexico it is proposed to augment the fleet in a phased manner, and possibilities of entering the field of deep-sea fishing are being explored currently.

Supplementing these efforts at sea is a programme of developing brackish water prawn culture and Britannia is among the pioneers investigating this area. The objective in both cases is to secure the freshest and best quality raw materials.

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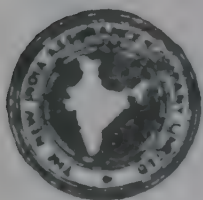
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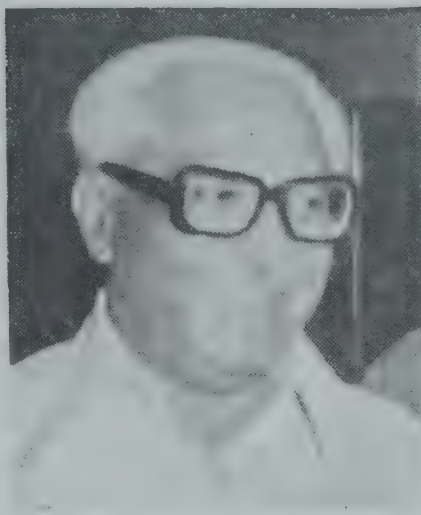
Fish in Parliament

Members of both houses of parliament have, of late, been showing an increasing interest in matters relating both to inland and marine fisheries. There has been a steep increase in questions by the members on fisheries matters in both the houses. This trend is attributable more to an increase in awareness of the important role fisheries development can play in improving the national economy rather than deficiencies in the implementation of fisheries developmental schemes.

Answering a question by Mr. V. S. Vijayaraghavan in the Lok Sabha, the minister of state for Agriculture and rural development, Mr. Swaminathan, stated that the number of deep sea fishing vessels (20m and above in length) in the commercial sector was 68 on ownership basis, and 15 foreign vessels on charter. Besides, there were 18 vessels with the Government for exploration, training, and experimental and for other purposes.

CHILKA LAKE

In the Sixth Five Year Plan a target of raising the number of deep sea fishing vessels to 350 was envisaged. This would be achieved through a judicious mix of imported, chartered and indigenously constructed fishing vessels. Applications had been received from the A.P. Fisheries Corporation through the State Government for the import of 2 factory trawlers. The Orissa maritime and Chilka area development corporation had also applied for the import of two shrimp trawlers. A request was also received from the Government of Tamilnadu for the import of four shrimp trawlers. Apart from these, the Orissa maritime and Chilka area development corpo-



MR. R. V. SWAMINATHAN

ration, A.P. Fisheries Corporation, Kerala Fisheries Corporation, and Gujarat Agro Marine Products were granted letters of intent to charter a total of 35 foreign fishing vessels under which, they had an obligation to purchase fishing vessels.

ENCOURAGEMENT

Replying to a question in Rajya Sabha put by Mr. B. C. Pattanayak, Mr. Swaminathan stated that government had proposals to encourage deep sea fishing. The Governments of the various maritime states and Union Territories had been informed of the guide lines for grant of permission for chartering of foreign fishing vessels which was one of the schemes being implemented for the development of deep sea fishing. According to the charter policy, he said, the public sector undertaking and fishermen's cooperative societies had priority consideration. The attention of the governments of all maritime states was drawn to the availability of loans to the extent of 95% of the cost in the case of indigenously built deep sea fishing

vessels and 95% of the cost in the case of imported ones. The urgent need for the state fisheries corporations and fishermen's cooperative societies to come up with proposals for the acquisition of deep sea fishing vessels was impressed upon the coastal state governments.

The Government of India had a number of important schemes included in the Sixth Five Year Plan for the development of deep sea fishing. These included a) Augmentation of fishing fleet through the charter of foreign fishing vessels, joint ventures, imported and indigenous construction, b) Provision of loans on soft terms for purchase of fishing vessels to the extent of 95% of the cost of indigenous vessels and 90% of the cost of imported vessels which is to be repaid in 15 annual instalments excluding one year of moratorium, c) Grant of subsidy of 33% on the cost of indigenously constructed vessels, d) Intensification of fishery survey through larger and more sophisticated vessels, e) Augmentation of training facilities for manpower requirements, f) Assistance for the construction of fishing harbours at major and minor ports and of landing and berthing facilities at smaller fishing centres, and g) Regulation of fishing by foreign vessels through the enactment of the Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act, 1981.

POACHING

In reply to a question by Mr. Mohanlal Patel on illegal fishing by foreign fishing vessels in the exclusive economic zone, Mr. R. V. Swaminathan replied that several cases of illegal fishing by foreign vessels in the exclusive economic zone of India had come to the notice of the government, who had already taken effective steps to check the activity under the mari-



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time zones of India (regulation of fishing by foreign vessels) Act, 1981, which was brought into force with effect from the 2nd November 1981. The Act provided for deterrent punishment including heavy fines imprisonment and confiscation of the fishing vessels. In 1981, eight Taiwanese, fourteen Thai and four Sri Lanka vessels were seized. The offenders were prosecuted and legal action against eleven had been completed and 16 cases were in various stages in courts. While pointing out that the country was short of fishing vessels he said that a target had been fixed to increase the number of deep sea fishing vessels to a level of 350 by the end of the Sixth Plan period through a judicious mix of indigenously constructed, imported and chartered fishing vessels.

SHIPYARDS

In answering a question by Mr. K. Kunhambu, Mr. Swaminathan pointed out that the Government provided to the Indian Shipyards 33% of the cost of the vessels constructed as subsidy. Under bi-lateral assistance the Goa Shipyard had been especially strengthened for construction of fishing vessels. Some state governments and union territories were also implementing schemes of rebates on motors and diesel used by small vessels. Fishermen training centres had been established in maritime states/union territories for the benefit of traditional fishermen taking to mechanised fishing activity.

Replying to a question by Prof. P. J. Kurien, the minister said that M/s. Metropolitan Trading Company, Bombay, M/s. Tropical Shipping Company Private Limited, Visakhapatnam, M/s. Varuna Marine Products Private Limited, New Delhi, M/s. Bottle Glass

Private Limited, New Delhi were permitted to charter 35 numbers of Taiwanese vessels through Singapore companies, of which 15 vessels had arrived and started fishing. According to the project reports submitted by these companies, the annual net foreign exchange earnings from these 35 vessels were estimated at US \$ 29.745 lakhs. M/s. Metropolitan Trading Company, had reported a net foreign exchange of US \$ 125,561.62 so far in 1982. Other companies had started fishing recently.

SOFT LOANS

Replying to a question by Mr. Digambar Singh, the minister stated that private fishing companies, besides being provided with soft term loans through the shipping development fund committee were provided with a subsidy of 33% on the cost of the indigenously constructed vessels, a rebate on excise duty on high speed diesel oil with a stipulated condition and harbour facilities at major and minor ports.

The minister furnished a list of 25 companies engaged in deep sea fishing as follows:

1) India Tobacco Co. Ltd., Calcutta,

2) Britannia Industries Ltd. Bombay, 3) Tata Oil Mills Co. Ltd., Bombay, 4) Union Carbide India Ltd., New Delhi, 5) Konkan Fisheries Pvt. Ltd., Bombay, 6) New India Fisheries Ltd., Bombay, 7) Dolphin Fisheries Pvt. Ltd., Bombay, 8) Esmario Export Enterprises, Quilon, Kerala, 9) Indo-Icelandic Fisheries Ltd., Madras, 10) Phoenix India Marine (P) Ltd., Hyderabad, 11) Srinivasa Sea Foods (P) Ltd., Visakhapatnam, 12) Vani Marines Pvt. Ltd., Visakhapatnam, 13) Pron Magnate Pvt. Ltd., Visakhapatnam, 14) Marine Fisheries Pvt. Ltd., Visakhapatnam, 15) Nava Bharat Ferro Alloys Ltd., Hyderabad, 16) M.M.P. Lines Pvt. Ltd., Calcutta, 17) West Coast Marine Pvt. Ltd., Cochin, 18) Suraj Fisheries Pvt. Ltd., New Delhi, 19) Yamuna Sea Foods Pvt. Ltd., New Delhi, 20) Uni Marine Pvt. Ltd., New Delhi, 21) Marshall Sea Foods Pvt. Ltd., Calcutta, 22) Metropolitan Trading Co., Bombay, 23) Tropical Shipping Co. Pvt. Ltd., Visakhapatnam, 24) Varuna Marine Products (P) Ltd., New Delhi, 25) Bottle Glass Pvt. Ltd., New Delhi.

Of these serial numbers 10 to 14, and 16 to 21 availed of financial assistance from the shipping development fund committee.



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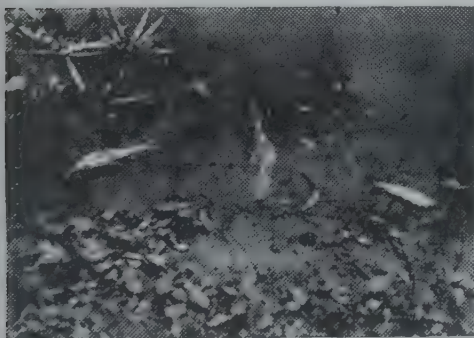
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Mass Fish Mortality at Muzaffarnagar

Dr. A. P. TYAGI,
Our Representative for Northern India
and
Miss. RANJANA SAXENA
Associate Representative

Muzaffarnagar Police arrested some fishermen on 19th May 1982 for mass fish killing in river Kali. The quantum of casualty was so great that thousands of fishes were floating dead on the surface of the waters of the river. The people of the area had a field day as they filled their bags with the booty. Unfortunately, it was not the first occurrence of this type. Earlier also similar tragedy had struck these waters, once in February 1982 and then in March 1982. This leaves a question, who was responsible for it? A team of researchers including the authors and Dr. S. R. Verma of Zoology Dept., D.A.V. (P.G.) College, Muzaffarnagar started investigating the cause of mass fish mortality.



THE SITE OF GRUESOME TRAGEDY

A detailed study of the waters of river Kali which flows through the outskirts (west) of Muzaffarnagar town, indicated a fatal level



KALLARPUR-KACHHOLI NULLAH (BACKGROUND) JOINING RIVER KALI IN FOREGROUND

of dissolved oxygen and pH. The river after originating from a point in Dist. Saharanpur (U.P.) terminates into river Hindon in Dist. Meerut. A Nullah of fairly big dimensions (Kallarpur-Kachhali nullah) carries the industrial effluent of Deoband Sugar Factory, Deoband (Dist. Saharanpur). It joins river Kali in the west of village Mimplana (Muzaffarnagar). This Nullah has been responsible for the present tragedy as the Deoband Sugar Factory opened the outlets of its effluent pits into it on the night of 17th May 1982. This act of selfishness on the part of Deoband Sugar Factory led to the situation, first in the nullah and then in the river, taking a heavy toll of fish life.

To elude the administration, the Deoband Sugar Factory has constructed pits for the storage of factory waste. However, these pits are frequently emptied into

Kallarpur-Kachholi nullah which ultimately opens into river Kali. The polluted waters not only killed the fish but also threatened the entire river ecosystem. Therefore, it is evident that the industrial effluent of Deoband sugar factory was responsible for the mass mortality of fish. Besides Kallarpur-Kachhali nullah, there are two additional sources which contribute to the intensive pollution of the river. A nullah which carries the industrial waste of Sir Shadi Lal sugar factory and distillery, Mansurpur (Muzaffarnagar) joins the river at a distance of 8 Km from Muzaffarnagar town. This industrial waste consists of a mixture of sugar factory and distillery waste and is a regular source of pollution in the river. Likewise, Amrit sugar mills, Rohana (Muzaffarnagar) drains its industrial waste into river Kali through a narrow nullah near Bawandara bridge of the river.

The tragedy of river Kali poses the question whether we are



FATE OF THE POOR CARP

really serious about checking the monstrous growth of pollution. Probably our future generations will not forgive us if it continued unabated.

INTERVIEWS

Mitra is one of the very few stalwarts that India has produced in the field of fisheries. As a student, he was a winner all through. At Calcutta university, in his M.Sc. course, he bagged three gold medals in three subjects. After post-graduation he took to fisheries. His uncommon insight and interest and incisive approach and application of mind to problems of fisheries, and total devotion to the subject took him to the top in Indian fisheries administration. His expertise is sought and respected in most parts of the world. Whatever he says filters through his rich knowledge and experience gained in four decades of fulsome involvement in the field.

Now 66, his mental faculties continue to be as sharp as a knife. There are experts we know of who have in-depth knowledge in one or two specific branches of fisheries. But Mitra is amazingly different. On any aspect of either inland or marine fisheries his knowledge to the merest detail is uptodate. Indeed a personality of rare vintage.

Born on September 8, 1916, Mitra, currently fisheries advisor to the Government of Orissa, is a man with an infective enthusiasm and energy. His professional achievements earned him the coveted Sunderlal Hora award. He headed several committees of food and agriculture organisation on fisheries matters and participated in scores of international fisheries conferences. He was consultant to UNESCO in Asia. He was also the Director for Persian Gulf fisheries project aided by the world bank.

He has toured all over the world except Australia and Africa. His work in fisheries development and management in Sri Lanka, France and Iran has brought recognition to Indian expertise.

Here is an account of an exclusive interview by Fishing Chimes with him.

Q. As Fisheries Adviser to the Government of Orissa could you please throw some light on the present state of affairs on prawn production in Chilka Lake? Every one says that there has been a 'massacre of juveniles' in Chilka Lake by the traditional fishermen. What do you say about it?

A. As Chairman of the Chilka

Development Committee set up by the Ministry of Agriculture, I along with other members had occasion to review this question in detail. No depletion is evident at present and we had recommended monitoring of the catches on a continuing basis.

Q. There has been a complaint by the small and medium scale

sea food Exporters that the present system of financing of processing plants is counter-productive. Please comment.

A. Liberal financing has led to establishment of a much greater capacity than the position of raw material supply warrants.

Q. What is the state of fresh water fish production in the state of Orissa?

A. Fish culture, on account of high prices of fresh water major carps, is in the market of consumers' preference. With the increasing supply of seed from the department of fisheries and the Bengal fish seed traders it has spread to the remote areas, stimulated by grants under PFDA's and institutional finance. The statistics of increased production are not based on any accepted methodology and the value is doubtful.

Q. For large scale fish farming you have been advising that research should be carried out on mechanisation. Could you please elaborate?

A. Vast areas of swamps are totally neglected and I believe that organised farming with its own seed production through joint sector or private sector enterprises will go a long way for real development on industrial lines. These centres can also supply seed to private farmers with small water areas, relieving the burden of government subsidising for supply to which there is bound to be a limit.

Large swamps can be reclaimed by mechanical means, dredging or lowering of water table for construction of silt dykes without expensive use of piles. Some research is necessary on the types

There is no depletion of stocks

of dredges and the mechanical equipment like dewaterers, silt pumps etc. But this can come in course of commercial work. What is required is for Government to supply on hire the equipment at subsidised rates to start with.

Q. In a country like ours where Government often says that developmental projects should be labour-oriented (preferably), how does your theory of utilising machines for forming large scale fish farms work out?

A. There are certain resources which cannot be labour intensive like deep sea fishing. Deeply silted swamps with acid silt cannot be cleared by manual labour. Mechanised reclamation also requires a small number of operators who can be trained. Operators of dredgers are available.

Q. What is your opinion on present state of 'transfer of knowledge or technology from lab to land? Do you think it is on positive footing in our country?

A. It will be on positive footing when our extension workers are able to transfer the technology properly to the fish farmer. Unfortunately, most of our extension workers are inadequately trained, ill-equipped and have not been operators of techniques they want to transfer.

Q. You have been in the field of fisheries for four decades. Do you believe that India would turn into a 'fishing gap nation', since it has vast resources and expertise?

A. My studies indicate that our resources or marine fisheries are limited although we have now the Exclusive Economic Zone. Inland fisheries have a vast scope. But we must give it the same facility as small scale industry, which has not been done so far.



MR. G. N. MITRA (WITH DARK GLASSES) WITH STUDENTS OF GAUHATI UNIVERSITY

After analysing our catch records I find that present knowledge indicates rather low scope of large scale production from the east coast. West coast has some potential but high sea exploitation has been economically difficult due to competition from Japan, Taiwan and Korea. Besides EEZ will limit India's fishing on the shores of African countries.

Q. Do you believe that there will be a 'boom' of fish culture in the north eastern region? What are your observations?

A. North eastern region with its acid soil has special problems which have not been given much attention by fisheries research workers. Swamp reclamation will take time to gain momentum. Increase of fishing efforts in rivers may not be desirable unless an all out effort is made. I do not visualise

a boom. On the other hand conditions are likely to deteriorate.

Q. Possessing gigantic proportions of research behind us, do you think that India can feed other nations with fisheries technology and research?

A. We have done a lot of research but most of our results are still empirical. Nevertheless, we can certainly supply the technology on development and research in most fields of fisheries development.

Q. In your view which country has developed their fisheries through sound research methods?

A. Enterprise as in the case of Indian shrimp has caused development and dragged research into it. This is almost the case in every country I had visited.

n Chilka lake, Says G.N. Mitra

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SASHADHAR NATH

Sashadhar Nath, Class I Officer, Assam Civil Service is an uncommon bureaucrat. No bureaucrat thinks of research on his own, and that too of fisheries research. But then, Nath is deeply involved in it. Hailing from a family of cultivators, he undergoes the hardships of a scientist with ease. He is now engaged in the investigation of fish and fisheries of the Barak River drainage regions and this puts him in the list of Indian fishery scientists. He did an extensive study on the Barak drainages and recently presented a paper on the subject at third All India seminar on Ichthyology held at Gauhati university. Considering the dangers involved, his work is commendable. It is well known that, in the past, tribals in the Barak area used to cut away heads of innocents to keep them at the dead bodies of their leaders so that their souls may have some company. The practice is still believed to be existing in the Barak river drainages zone. Yet, Sashadhar's zeal did not stop him from carrying on his work. Wearing shorts and carrying camping equipment he moves in the tough terrain, he carries out field studies for the benefit of the world of fisheries. He runs a laboratory at his home.

As an officer of Grade I in the Assam Civil Service, he could have lived a cozy, comfortable life. But he refuses to do so. Reguses even to get married until he achieves something significant.

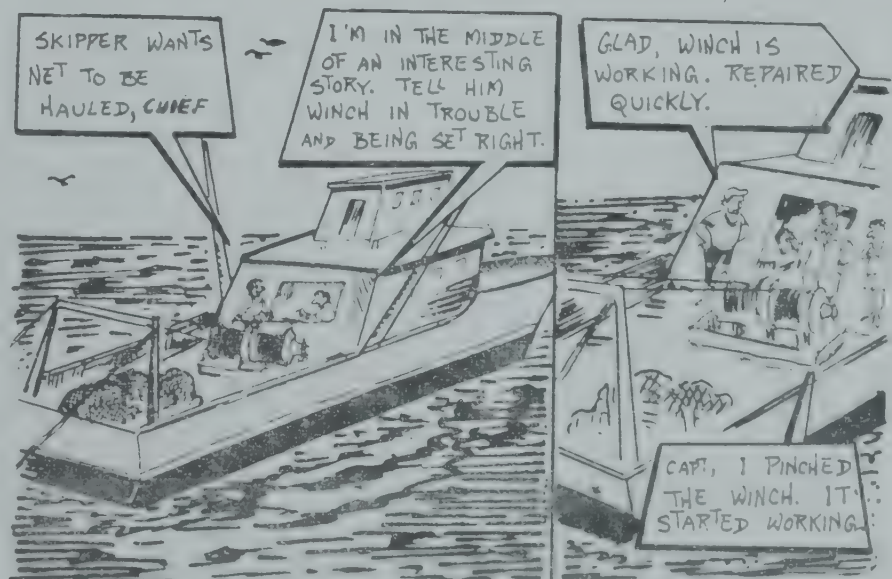
Here goes his story in his own words.

"I had my M.Sc. in 1972 and soon after became a lecturer at B. Barooah College, Gauhati before joining Assam Civil Service as Class I Officer. I was posted as an Extra Assistant Commissioner at Karimgunj of Cachar district. I am presently attached to the Commissioner, Lower Assam Division, Gauhati since 1980.

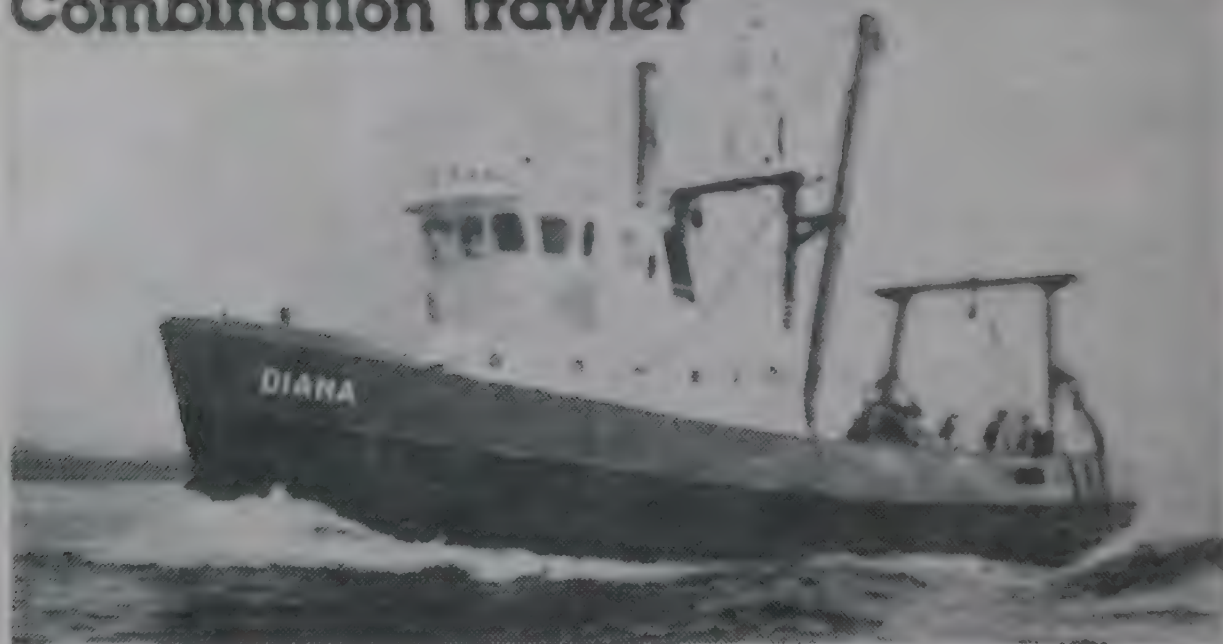
During 1975-76 I discovered the virgin field of River Barak and its tributary system. Fish and fisheries there deeply interested me. During my efforts to locate past

work done on the subject I found that very little was done relating to this area. It was Pillay and Ghose in 1965, who traced and described Hilsa ilisha (Indian shad) upto Lakhipur only. It was an isolated effort and virtually there was no serious effort put in later. I concentrated on the fish and fisheries of Barak drainages in Cachar district and upper reaches of it. I believe that this would fill a serious vacuum in the ichthyological map of India.

I carried out my investigations during 1977-79 on the river Barak



Combination trawler



This type of vessel is custom built in series and is specially designed for as well beam as stern trawling in tropical waters.

The result is a stable vessel with a large working deck area and easy to handle in all respects.

The hull is of the single chine form, giving a large fish hold, a spacious engine room and a bigger accommodation under deck.

The hull is divided into six watertight compartments: forepeak, crew accommodation, engine room, fish hold, fuel tanks and afterpeak/netstore.

Freezing of the catch is done by the brine tank on the main deck and by a blast freezer in the hold.

The propulsion installation consists of a Caterpillar marine diesel engine of 270 kW (365 hp) at 1800 rev/min, driving a fixed pitch propeller.

The three-drum fish winch is hydraulic driven. Two auxiliary engines drive a compressor for the freezing installation, generator and a bilge pump.

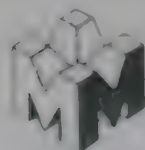
In the superstructure are provided a galley/messroom, two toilet/shower cabins, two double and two single cabins. In the forepart below deck an eight berth crew compartment.

Nautical and fishing equipment, comprise among others radar, radio installation, direction finder and echosounder.

The vessel obtained the classification Lloyd's  100 A1 "trawler" and Lloyd's Machinery Certificate (LMC).

Main particulars:

length overall	23.50 m
length between p.p.	21.00 m
breadth mld.	6.50 m
depth at side	3.40 m
draft (mean)	2.65 m
fish hold capacity	abt 70 m ³
fuel oil capacity	abt 40 m ³
fresh water capacity	abt 15 m ³



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as far as the mountain terrain upto Khantum near Tipaimukh of Mizoram in the upper reaches including its tributary systems. It may well be stated that the northern tributary system consisting of the rivers Jiri, Chiri, Madhure, Jatinga, Gumra and Baleswer comes from the southern slopes of the very high hills of the Barail ranges and has distinct characteristics from the southern ones, namely, Sonai, Rukni, Katakhal-Dhalasweri, Singla and Longai. These come from the Lushi hill range of the southern Cachar, Manipur and Mizoram.

I did the work at my own cost. Substantial portions of my salary went to this purpose. I gave up holidays and festivals. However, I did not fail in discharging my official duties in any manner. They were never affected due to my research. At the All India Seminar on Ichthyology, held at Gauhati in July 1982, I have exposed a picture covering only some of the aspects of my observations, in four papers. Altogether,

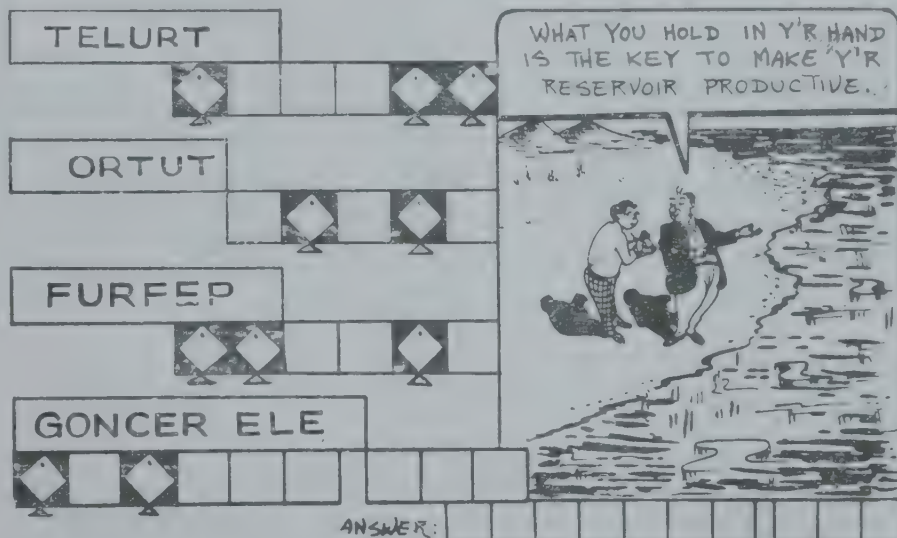
135 species of fish fauna of each of the tributaries have been revealed. The problems relating to the fisheries of the area have been presented. The fisheries of Indian major carps namely; Labeo rohita

Rohu, Catla catla, Labeo calbasu, Cirrhina mrigala, the hilsa and other groups of fisheries and their prospects have been discussed in my presentations.
(Contd. on page 60)

FISHERMEN'S JUMBLE

These words are as unsorted as a fish haul. Restore them to the correct order, with each letter to a square. After this, arrive at

the answer by adjusting the letters in the 'fishes', deriving clue from the sketch alongside.
Answer on p. 59



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Missing Fishermen Back Home Safe

From V. KRISHNASWAMI
Our Madras Representative

All missing fishermen of Royapuram-Tiruvottiyur area since July 16 returned safely on July 21. The first batch returned on July 20 and the second batch on July 21. They set out to the high seas on July 16 to catch 'kola' (flying-fish). A coast-guard vessel and the state government's helicopter Chetak were pressed into search operations.

A spokesman of the Fisheries Department said that 24 men were sighted off the Andhra coast and rescued by boats belonging to the department and the fishermen's cooperative society. Eleven returned to their home. They were reported to have lost their way as the sea was rough. Others also returned later.

Kola or flying fish which is found in abundance in the sea this time of the year could have been responsible for the ordeal of more than 150 to 200 fishermen at sea during the last five days.

The Kola which is a small fish, just six inches in length, contrary to popular belief, is found about 40 miles from the shore. The three-month season is a breeding one, beginning from June. According to the spokesman of the Fisheries Department, this fish moves only in shoals consisting of thousands and is easy to catch. In one trip four members going in a catamaran can get a catch easily worth Rs. 1,000 -. It is so easy to catch

these fish that fishermen are reluctant to return wanting to catch more of this variety.

It takes three days for fishermen to complete Kola fishing. They leave early morning and take about 12 hours to reach the place where these fish are in abundance. There they let into water a bush of kola leaves. Soon the fishes are attracted towards these leaves which are ideal for laying eggs. When the shoal is enough the fishermen cast the net and trap the catch.

On the morning of July 16, in all about 150 to 200 fishermen from Royapuram-Tiruvottiyur area left for kola fishing in about 60 catamarans. The next day, when they completed their fishing, they noticed to their dismay that the direction of the wind had changed and the swift ocean current was taking them away from the shore and they all became panicky. But mechanised boats and coast guard vessels came to their rescue in high seas and saved them.

Gangadhar (20) from Kasimedu Kuppam, who returned home after his nightmarish experience at sea for five days, said that they drifted away towards Andhra Coast and were getting unnerved when a mechanised boat sighted them and went to their rescue. Three catamarans belonging to their group were rescued by the boat but they demanded Rs. 50/- for each catamaran towards fuel charges.

He said that 12 fishermen in three catamarans, rescued by the mechanised boat, had to pay Rs. 150 - after being brought ashore. Though they called their fishing craft as catamarans, he said, what they usually used for kola fishing were 'Kolamarans'. When a craft had more than seven logs, which were again bigger in size, it was called 'Kolamaran'. As Kola fishing generally took three to four days, the more spacious 'Kolamarans' were used, he said.

Munyan (24) describing his experiences said that he got the first inkling of tough times on Friday (July 16) evening when he found it impossible to steer his craft towards the shore after the catch. From then on, it was a string of problems with winds and current gaining and pushing up his catamaran towards deeper sea. There was some respite on July 18 (Sunday) when a private mechanised boat near Sriharikota gave a helping hand and towed the catamaran half way towards the shore. But diesel shortage forced the boat to give up towing. Another mechanised boat came by and this time the catamaran was towed to safety, he said.

Though not very common, such ordeals do occur at sea and three years ago four fishermen lost their lives at sea while fishing for Kola. One happy feature of the whole episode was that all missing fishermen had returned safely and this was to a great extent due to the intensive efforts made by the Tamil Nadu Fisheries Department. An assistant director of the fisheries department made an aerial survey of the sea from the State Government's helicopter 'Chetak'. The Department deserves all appreciation for its ceaseless air and sea search in tracing the missing fishermen and bringing them back to shore.

KARNATAKA NEWSLETTER :

MR. G. L. RAO

Dr. P. KESHAVANATH



MR. G. S. SINGIT (4th from left) IS SEEN EXPLAINING THE WORKING OF THE GLASS JAR HATCHERY TO THE HON'BLE MINISTER OF STATE FOR FISHERIES MR. D. B. PAWAR (extreme right) MR. V. SWAMINATHAN TUNGABHADRA BOARD SECRETARY (extreme left) AND THE RETIRED SENIOR ASSISTANT DIRECTOR OF FISHERIES, PRESENTLY BELLARY CORRESPONDENT OF HINDU, MR. B. R. G. PRASAD (2nd from left) ARE LOOKING ON

FOUNDATION STONE LAID FOR INDO-DANISH FISHERIES PROJECT

The laying of the foundation stone for the Indo-Danish Fisheries Project marks the beginning of the implementation of this prestigious development project of Karnataka which has had a long gestation period of nearly 5 years. Mr. Kagodu Thimmappa, Minister for Public Works formally laid the foundation stone for this project at Tadri, in Uttara Kannada District (North Kanara) on 22nd May 1982. Mr. D. B. Pawar, Minister of State for Fisheries and Ports presided over the function.

His Excellency Bjorn Olsen, Danish Ambassador to India was the Chief Guest. Mr. S. V. Nayak M.L.A. released the Souvenir brought out on the occasion.

In his speech Mr. Timmappa regretted that most of the time the benefits intended for poor fishermen reached rich people. Though it was difficult to provide employment for everyone, the project initiated at Tadri should generate jobs for fishermen living in the surrounding villages, he said. The Minister called upon fishermen to make good use of the facilities provided by the Government. He revealed that the development of the Karwar

harbour would be taken up at a cost of Rs. 1 crore and it would be developed into an all weather fisheries harbour, for which purpose Rs. 50 lakhs had already been allotted.

Mr. D. B. Pawar, explained the objectives of the project. He expressed his happiness at the awareness among the local fishermen of the recent technical advances made in the field of fish capture.

The Danish Ambassador, Mr. H. E. Bjorn Olsen said his country had better contact with Karnataka than any other State in India.

Dr. Narayanaswamy welcomed the gathering and explained the progress achieved by the State in marine and inland fisheries.

Tadri (pronounced Tathadi in Kannada), a small fishing port at the mouth of the Aghanashini River was a flourishing commercial port in olden days which fell into disuse with the growth of land transport and the diversion of trade to other ports like Karwar in the North and Honnavar in the South.

The river above the mouth offers a vast area of sheltered anchorage which at places is 8-9 metres deep. A sand bar opposite the mouth with depth of only about 2 metres however restricts the size of boats which can enter the port. At present about 70 mechanised fishing boats including a few purse seiners are based at this port. During the peak fishing season nearly 200 fishing boats throng to this port. There is an active fishermen's cooperative society at Tadri which has taken up disposal of the fish catch and supply of basic fishing requisites like diesel oil, fishing nets etc. There is a small servicing centre run by the North Kanara District

Cooperative Fish Marketing Federation. Except for these few limited facilities, the port lacks the infrastructure for the development of the port to its full potential. The proposed project therefore satisfies a long felt need of this backward area of this part of the coast.

The project has been taken up by the Government of Karnataka in collaboration with the Government of Denmark represented by the Danish International Development Agency (DANIDA). It involves an investment of Rs. 6.38 crores spread over a period of 6 years. Of this, Rs. 5.32 crores will be provided by DANIDA as grant. The project covers a programme of construction of a fishing wharf 200 m. long, introduction of 200 mechanised fishing vessels and 20 purse seiners, motorisation of 50 canoes with outboard motors, provision of ice plants of 45 tons a day capacity, freezing plants (contact plate as well as blast freezers) of about 10 tons a day capacity, chilled storage of 300 tons and cold storage of 100 tons, infrastructure of a 'cold chain' for a marketing system with 20 portable deep freezers, 3 refrigerated vans etc. Other shore facilities proposed to be provided are fish processing plant with skinning, filleting and meat picking machinery, a boat building yard and a marine workshop.

Modernisation of the fishing industry at Tadri through transfer of appropriate latest technology drawing from the experience from Denmark is the essence of the project. The local fishermen's co-operative society will undertake distribution of the boats to the fishermen and the disposal of their catches. The Karnataka Fisheries Development Corporation, Mangalore will play a key role in the operation of the ice plants and cold storages and the 'cold chain' for marketing of fish. It is proposed to start the second 'cold

chain' for the hinterland of North Karnataka. Training programmes, research and development are also envisaged in the project. Another feature of the project is the colonisation of 500 poor, houseless fishermen and employment of fisherwomen. In all about 3,500 men and women and other will find employment in the project when completed. Fifteen thousand tonnes of fish are expected to be landed every year with an estimated boatside value of Rs. 2.5 crores. The annual income of the fishermen is expected to increase from the present level of Rs. 3,200 to Rs. 5,400.

INAUGURATION OF A GLASS JAR-TYPE HATCHERY FOR CARP BREEDING AT TUNGABHADRA DAM

Mr. D. B. Pawar, Minister of State for Fisheries and Ports inaugurated on 25th May 1982 the first large scale jar type hatchery in the state at the Tungabhadra Fish Farm, Tungabhadra Dam.

The Tungabhadra Fish Seed Farm at Tungabhadra Dam is one of the premier fish seed production farms in the state of Karnataka. Started by the erstwhile Madras state and further developed by the

Tungabhadra Board under the joint participation of the Governments of Karnataka and Andhra Pradesh, the farm has been an important source of fish seed to both the states. The fish seed is produced here by hypophysation and annually 2 to 3 crores of hatchlings of major carp are produced, yielding about a crore or more of fry. One of the problems has been the heavy mortality of spawn in the conventional hapas and the comparatively poor percentage of survival of hatchlings and fry. The Tungabhadra Board therefore decided to set up a jar hatchery designed by the Central Inland Fisheries Research Institute, Calcutta.

The hatchery has been constructed at a cost of Rs. 2.4 lakhs and has a capacity of hatching 48 lakhs egg per day. The spawneries set up will hold more than 120 lakhs of 3 day-old hatchlings.

With the commissioning of the hatchery, it is expected that there will be a spurt in the production of fish seed in the farm by raising the hatching and survival levels and making more pond-space available for rearing and holding stock.



A VIEW OF THE GLASS JAR HATCHERY

In his speech, Mr. Pawar said that the 20 fish farms engaged in seed production in the state produced a total of 11 crore spawn as against the State's requirement of 20 crores, he said. This wide gap in production had to be bridged. He stressed the need for adequate facilities to rear seed, in order to step up fish production and felt that the jar hatchery will help in enhancing seed production in the State.

Earlier, the Director of Fisheries, Mr. M. Jayaraj said the Tungabhadra Board's fish farm, started in 1959 for seed production, expanded in stages and today it had eight hectares of area with a water spread of 4.7 hectares, the investment, so far, being Rs. 19 lakhs. The Tungabhadra Board farm was one of the best in the country producing three crore carp seed annually, by the hypophysation technique. Besides supplying seed to the State, carp seed from the farm was being sent to Andhra Pradesh, he added.

Mr. Jayaraj said the fisheries department proposed to increase seed production from the present 11 crores to 15 crores. He complemented the Board in the matter of managing the fish farm, fishnet factory and the ice factory, annually earning Rs. 2 lakhs, 4 lakhs and Rs. 30,000 profit respectively. The Tungabhadra reservoir, producing 93 kg. fish per hectare, was one among the best five productive reservoirs in the country, he observed. The glass jar hatchery would facilitate higher seed production through improved techniques.

The Tungabhadra Board Secretary, Mr. V. Swaminathan, who welcomed the gathering, said the jar hatchery designed by the Central Inland Fisheries Research Institute could accommodate 48 lakh eggs at a time and this

hatchery was an improvement over those installed earlier at Vani Vilas Sagar fish farm and Bhadra Reservoir fish farm.

Shri G. S. Singit, Fisheries Development Officer, Tungabhadra Board, proposed the vote of thanks.

PERSONALIA NEW EXECUTIVE FOR STATE FISHERIES CORPORATION

Mr. B. Chandrasekar, M.Sc., Deputy Director of Fisheries, has been deputed to the Karnataka Fisheries Development Corporation Limited, Mangalore, as Managing Director in the place of Mr. H. N. Chandrashekharaiyah, B.Sc. (Hons.) who goes back to the Fisheries Department as Deputy Director of Fisheries, Bangalore.

OBITUARY MR. ULLAL SUNDER KINI

The death occurred on 15th May 1982 at Mangalore, of Mr. Ullal Sunder Kini, one of the foremost fish-oil technologists in India. He was 68. Joining the fisheries department as a research assistant in the erstwhile Madras state he later worked in the Industries Branch of the Department of Industries & Commerce and was chiefly responsible for the establishment and growth of the shark liver oil industry. On the reorganisation of States he was allotted to the Kerala state. From shark liver oil production and marketing he expanded his activities to cover soaps when he was placed in charge of the then Kerala Soap Institute also. Later he was assigned the task of completing and commissioning the Hydrogenation factory which was then in a half finished state. He accomplished the task successfully and when the Kerala Government set up the Kerala Soaps & Oils as a government company he was appointed General Manager of the Company. He successfully managed the

company until his retirement. Even after his retirement he kept himself active and was responsible for the setting up of the Mukka Oil and Food Products Private Limited, Mangalore and the Kodial Foods and Fats Private Limited, Mangalore. He started also the first oil hydrogenation unit in Mangalore.

Mr. Kini was an astute businessman and an able administrator. He had a genial personality and brought into his work a bon-homie which made working with him both a pleasure and an interesting experience. He interested himself in many activities besides his work. He was an active member of the 'Optimists club' in Kozhikode. He also participated in the activities of the Management Association and Productivity Council at Mangalore. He was an honorary general secretary of the Kanara Chamber of Commerce. Mr. Kini left behind his wife and three daughters and a host of friends.

WORDSPIN

Can 'TANK' be transformed into 'BIRD'?

Yes : In the following grill start changing one letter at a time to form the next word arriving at 'BIRD'.

See answer on page 59

T	A	N	K
B	I	R	D

4DAY CHRONICLE

VISAKHAPATNAM

Although there were several days in July during which the fishing vessel were forced to remain at port on account of bad weather, fishing results had been, by and large, far above average, so far as larger fishing vessels were concerned. The catches from small mechanised boats also improved from 15th July 1982 and on an average each boat had been bringing about 15 kg. of whites and 4 kg. of browns. The earnings of the boat owners had improved considerably.

M. T. Priyarani of Union Carbide and M. T. Subhashini and M. T. Sahasini of Srinivasa Sea Foods were on the slipway undergoing repairs which became necessary on account of the effect of the recent Paradeep cyclone. These would soon come out of the slipway. The engine of M.T. Marine Victor failed while on voyage during the month. She was towed to port by the sister trawler M.T. Marine Success.

M.T. Surya I of M/s. Suraj Fisheries Private Ltd. returned back from her maiden voyage on 17th July 1982 after successful fishing operations for 20 days. The vessel brought a catch of 4.4 tonnes of headless shrimp and 6 tonnes of fish. The blast freezing system on the vessel was found to be good and effective.

The two trawlers belonging to M. s. Yamuna Sea Foods Private Limited left on their maiden voyage on 31st July 1982. The vessels arrived at Vizag port in February 1982. The long delay in

undertaking operations was due to organisational problems and time taken to obtain clearances from MMD.

4 new trawlers were added to the fishing fleet at Visakhapatnam on 4th July 1982. These were (a) Satnam, (b) Sonia, (c) Triya, (d) Seetal. Two of these, belonging to M. s. Unimarine of Delhi, left on their maiden voyage recently.

2 Dutch technicians from De Hoop Shipyard, Holland where the four above mentioned vessels and another vessel M.T. Diana were constructed, arrived in Vizag to make a study of the operations and to incorporate modifications necessary for the four trawlers.

Having noted the working problems faced by M.T. Diana which arrived earlier, they incorporated necessary changes such as extension of outrigger booms, placing fair-leads etc.

The operators have a feeling that the five De Hoop built trawlers are far better than Damen built trawlers in respect of accommodation, engine room lay out, and freezing system. But the disposition of the winch is inconvenient and the three hatch coamings on the deck take away lot of space on the working deck.

M.T. Diana improved the catch position. She brought 3.4 tonnes headless shrimp in a recent voyage. The owners were happier than before.

M.T. Saraswati, wooden trawler, belonging to Capt. S. K. Amin had been taken on the slipway for re-sheathing and bottom repairs. The propeller was pulled out for remounting on the edges. The work

was done by M. s. Chowgule workshop at Visakhapatnam. It was stated that after the welding, balancing was not carried out perfectly on account of which it was felt that the efficiency in propulsion was lost. It was then fixed with a new propeller.

One would notice at Visakhapatnam a large number of unemployed ticket holders awaiting for positions on fishing vessels. This situation, it is stated, is being exploited by a few unscrupulous skippers who manage to get them jobs on receiving some financial consideration. Several skippers resent this unethical approach.

All the trawlers suspended fishing operations and entered either Paradeep or Visakhapatnam Port on 29th July 1982 on account of bad weather. They left again for fishing on 30th July.

There is a talk that M. s. Union Carbide may commence operating some of their Mazagon built trawlers from Roychowk from the month of September.

M.T. Jesal of Gujarat Agro Marine landed 5.4 tonnes of HL shrimp in a recent voyage. M/s. Tata Oil Mills (fisheries division) appointed a few trainees for receiving training on their two chartered Thai trawlers. All these trainees were kept in reserve till now on payment of half of their salary. It is understood that the trainees had represented to the company to define working hours, grant sea allowance and also to regularise their services. It was observed that the trainees raised slogans concerning these twice a day in front the company's office at fishing harbour.

The construction of the processing plant of M. s. Bio-Freezers had now come to a standstill, after the work had progressed upto the lintel level. It appears that the work had

to be stopped as the A.P. State Cooperative Bank which sanctioned the loan for the project had not released further funds for want of fulfilment of certain formalities.

M/s. George Maijo, having commenced the construction of their processing plant in fishing harbour area, faced a difficult situation on account of the resistance offered by fisherwomen who were using the plot for curing fish. When Maijo was not allowed to proceed with the work by the fisherwomen, led by their leader Mr. Nolli Appalaraju, the company's representative brought the matter to the notice of the Chairman, Port Trust, who referred the

matter to the Police for extending protection to the company. The Police gave a warning to Mr. Nolli Appalaraju. Thereupon he met the Chairman of the Port Trust and represented that an alternate site for curing fish may be provided to the fisherwomen. The chairman of the Port Trust and the Superintendent of Police made a joint visit of the area and an alternate site very close to the fishing harbour was earmarked for their use. The department of fisheries was requested to construct a platform in the alternate site for use by the fishermen for the curing of fish. These arrangements satisfied the fisherwomen and they allowed M/s. George Maijo to go ahead with the construction of their plant.

Ban period was on during the month in the country for export of frozen frog legs. Pomfrets commanded a price ranging from US \$ 2.50 to 2.70 per kg. Frozen Mackerel to gulf countries commanded a price ranging from US \$ 1.00-1.15 per kg.

Catches of tigers from Calcutta area were good, although the demand had slowed down in Japan. There were no significant catches in Paradeep area. Shrimp catches in Chilka area were at an average daily level of 3 to 4 tonnes of whites, 5 to 10 tonnes of small shrimp and one tonne of brown. Along the North Andhra coast, at Tuni, Palasa and Konada, the local catches were about 2 tonnes per day. The catches at Kakinada were poor.

The raw material procurement prices at Visakhapatnam for headless shrimp per Kg. were as follows: Tigers—Rs. 126/-,. Whites—Rs. 86 to Rs. 90/-, Browns—Rs. 75 to Rs. 78/-.

MARKET TRENDS

Export prices for shrimp in Japan having reached the peak level in the middle of July 1982, had now started coming down. Demand for Calcutta tiger had come down. The PUD market continued to be down. The importers had been cautious and reluctant in placing further orders at higher prices and were asking the Indian processors to wait for some time. This appears to be partly on account of expectations of heavy landings

of shrimp in major supplying countries like India and China. Bigger size (8/12-16/20) and also smaller sizes (41/50-71/90) were not commanding higher prices in Japan due to heavy inventories. It is however stated that the overall inventory position in Japan was normal. The demand for the middle counts, particularly 21/25 to 36/40 counts had none the less strengthened. The export prices at the end of July 1982 were stated to be:

JAPAN

Type	Count Range	Price Range per kg./US \$
HL White/flower	8/12-91/110	15.40-3.70
HL Tiger (Calcutta)	8/12-71/90	15.60-4.60
HL Brown(grey brown)	16/20-71/90	13.30-4.60
PUD Cochin	80/120-300/500	4.80-2.50
	Broken	no offer

USA

Type	Count Range	Price Range per Lb./US \$
PD Block	130/200-300/500	2.15-1.50
	Broken	0.85

ADIZ

- 1) Thunnus maccoyii is the scientific name for
 - a) Northern bluefin tuna,
 - b) Southern bluefin tuna,
 - c) Longtail tuna e
- 2) Thunnus albacares is the scientific name for
 - a) Albacore, b) big eye tuna,
 - c) yellowfin
- 3) Sail fish, Istiophorus platypterus is a
 - a) tuna, b) bill fish,
 - c) tuna-like fish
- 4) 'chumming is —
 - a) method of coaxing the hooked fish for hauling with ease, b) throwing of live bait fish from the vessel into the sea to attract tuna, c) conditioning the live bait fish in bait tanks on vessels to keep them alive for a long duration.

- Trolling is —
- dragging of one or several lines with hooks from outriggers or stern of a vessel moving at slow speed
 - trawling from the sides of a vessel
 - rolling of a vessel in heavy weather
- 6) 'Payaos' used in Philippines are
- catamaran-like structures used for tuna fishing
 - anchored tuna aggregating devices
 - small shops for retail selling of fish
- 7) To haul each basket of tuna long line it takes
- 2 to 3 minutes, b) 1.5 to 1.8 minutes, c) ½ to 1 minute
- 8) Tuna live mostly in
- clear open oceanic waters,
 - turbid waters, c) disturbed waters.
- 9) Japan commenced commercial longline fishing operations in Indian Ocean in the year —
- 1952, b) 1955, c) 1956
- 10) Highest Quantities of yellowfin, Bigeye, blue marlin and swordfish from Indian Ocean are landed by
- Taiwan, b) Republic of Korea, c) Japan
- 11) Deep long lines are used by Japanese mostly for catching
- deep water albacore,
 - deepwater yellowfin,
 - deepwater bigeye
- 12) Hooking rate means
- number of fishes caught in 100 hooks, b) number of fishes caught in a single longline operation
 - number of fishes caught in longline operations per hour.
- 13) Exploitable potential of tuna and tuna-like fishes from Indian waters as projected by CMFRI is
- 240,000 tonnes,
 - 280,000 tonnes,
 - 220,000 tonnes

- 14) Commercial longline operations for tuna are conducted by
- Indian enterprises, b) Indian and non-Indian enterprises,
 - entirely by non-Indian enterprises.

- 15) Skipjack tuna's preferred temperature range is
- 15-20°C, b) 17-20°C,
 - 19-20°C

Answer on p. 50



Q. How is it that no Indian commercial enterprise is able to introduce off shore purse seiners and long liners for tuna, in spite of all the encouragement from the Government?

**J. D. Dominic Mani
Hyderabad**

A. Tuna purse seiners and long liners are expensive. High order of technical skills are required to operate them.

In order to make heavy investments, an enterprise must be sure about the availability of the fishery resource, processing infrastructure and export outlets. Regarding availability of resources, everyone looks for an example, someone to set up a precedent of successful fishing. No one however is coming forward to bell the cat. Demonstrations by purse-seiners and long liners owned by the government are not encouraging. What is needed is a demonstration from a commercial angle.

Acquisition of expertise is also a major problem. None in India has acquired professional calibre of the order required, so far.

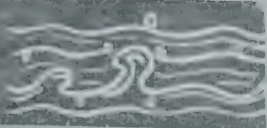
In order to get over the element of risk involved in making investments straight away in tuna vessels, the only way for commercial enterprises is to charter these vessels and gain experience before actual acquisition. The companies can also enter into joint ventures

with foreign fishing companies to introduce tuna vessels.

The above approach appears simple but there are a few problems in the way. One is that tuna is an open sea fish, available in international waters i.e. outside the EEZ of several nations. In view of this, foreign fishing companies prefer either to restrict their operations to these areas or conduct clandestine operations in the farther limits of EEZs which cannot easily be detected by the nations concerned. Apart from this tuna vessels are now mostly operating in the Pacific and Atlantic Oceans where fishing is good. They do not want to move to a new area and take risks. Further, lack of adequate tuna processing facilities at Indian ports is another deterring factor.

The normal charter terms laid down by the government are not an adequate inducement for foreign tuna vessels to operate in Indian waters. In the case of larger trawlers, our government's terms are sufficiently attractive and trawlers are given on charter by foreign fishing companies. For tuna vessels the situation is altogether different. While they are not in a bargaining position in respect of trawling, they are in a position to be just non-responsive concerning tuna vessels.

There are very few countries in the world having expertise in tuna (Contd. on page 57)



BRACKISHWATER FARMING: AREA DEVELOPMENT SCHEME

The union department of agriculture has sanctioned on 8th June 1982 an area development scheme to bring about faster development of brackish water farming. Under this scheme coastal state fisheries departments will set up extensive brackishwater farms. While the entire expenditure will be borne by the fisheries departments with 50% help from centre, the farm area will be divided into several plots which will be allotted to prospective farmers. The expenditure incurred by the department for the excavation work will be recovered in annual instalments on a long term basis from the farmers. The expenditure on the construction of sluices and channels will not be passed on to the farmers. While the farmers will be free to undertake culture in their respective ponds, the overall management will be in hands of the department and they will provide all common supplies and service charge will be levied on the farmers.

Training to the farmers will be given free of cost. In regard to inputs, the departments will provide a subsidy of Rs. 2,000/- per farmer. The rest of the requirements, estimated to be of the order of Rs. 8,000/- per farmer have to be raised by the farmers from commercial banks or otherwise.

The design of the farms has to be first drawn up by the concerned state fisheries department and sent to the union department of agriculture. Once this is approved, engineering support for preparing detailed drawings and estimates

and supervising the construction will be forthcoming from PISFH (Pre-investment survey of fishing harbours unit) at Bangalore.

The central outlay under the scheme is Rs. 500 lakhs for a period of three years. It is learnt that the central government would be able to increase this outlay, if necessary. The expenditure under the scheme will be met on 50:50 basis by the Central and State Governments. This means that the state fisheries departments have to invest Rs. 500 lakhs in order to implement the scheme.

The response from the state governments is favourable and therefore substantial development in brackishwater farming can be expected in the coming three years.

INSTITUTE OF COASTAL FISHERIES ENGINEERING

It is understood that a project with UNDP assistance, to set up an Institute of Coastal Fisheries Engineering, is under active consideration of the ministry of agriculture. It is learnt that UNDP has already given their willingness in principle to favourably consider such a project. The proposal is to

augment the present functions of PISFH unit at Bangalore, which is now in charge of engineering matters connected with setting up of fishing harbours, by including the engineering aspects of the work relating to brackishwater fish farms, and it is under consideration to

rename the unit as 'Institute of Coastal Fisheries Engineering'.

Centralised engineering support for designing and constructing brackishwater farms is now lacking. Consequently, some of the farms constructed in recent years suffer from several faults, particularly those relating to effective water regulation. The setting up of an organisation to handle the designing of brackishwater farms will eliminate these deficiencies and results in the utilisation of the investments properly.

NATIONAL SEED PROGRAMME

A national seed programme, for increasing the production of fish seed, with an outlay of Rs. 8000 lakhs has recently been sanctioned by the union department of agriculture. Under this scheme, the states can set up one seed farm each, with about an extent of 10 hectares. These will be integrated seed farms with ponds to keep breeders, and to raise fry. A hatchery will be a component part of the farms. 70% of the cost will be given by the government of India as loan and the balance will be invested by the states. It is anticipated that, as a result of implementing the programme, 25 hatchery farms in 11 states will produce 250 million quality fish seed per annum on full development leading to an additional fish production of 90,000 tonnes.

NATIONAL

HATCHERIES UNDER WORLD BANK SCHEME

Under the World Bank scheme to raise the output of fish seed, introduced in the states of West Bengal, Bihar, Madhya Pradesh, Uttar Pradesh and Orissa, it was planned to set up large-sized seed farms with hatcheries as an

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integral part. Although two years have elapsed progress in the setting of the hatcheries has been tardy. Perceptible progress is seen only in Uttar Pradesh where tenders have been called for. The tenders received are stated to be now under scrutiny at state level. It is expected that these will be sent to the centre soon for obtaining the approval of the world bank.

* * *

ITC TRAWLER DEAL

A Committee of experts including the Chairman and Managing Director of Tamil Nadu fisheries corporation visited Visakhapatnam recently and inspected the vessels of ITC, offered for sale to the corporation. It is understood that the committee has submitted a report to the government. It appears that the Committee is in favour of having the trawlers on charter instead of outright purchase. It is stated that the government is inclined to prefer the purchase of new vessels. There seems to be a move to place orders with an indigenous shipyard and the name of Chougule Shipyard, Goa is mentioned in the connections.

* * *

DUTCH TRAWLERS AT VIZAG

In recent months nine dutch built trawlers belonging to five companies arrived at Vizag Port. All the trawlers, with the exception of one out of the two trawlers of Suraj fisheries have been cleared for operations. Thanks to the meticulous care taken by their shore manager, Capt. Venkateswarlu in regard to riggings, the trawler brought a catch of 4.4 tonnes of shrimp in her maiden voyages. Two trawlers owned by Yamuna seafoods and another two owned by Marshall seafoods are now on their maiden voyage. Two trawlers belonging to Unimarine are in readiness to sail.

The companies are now confident that, with proper adjustment in net dimensions, weights of otter boards and correct rigging the trawlers can be operated successfully.

* * *

MARINE FISHERIES WORK MAY BE TRANSFERRED TO DEPT OF OCEAN DEVT

There are strong rumours in the air that government would soon transfer the work relating to marine fisheries development to department of ocean development. This step seems to have been contemplated to ensure coordinated development of ocean resources and for faster decisions on marine fisheries developmental matters.

* * *

U.P. FISHERIES CORPORATION

It is understood that the government of Uttar Pradesh shifted Mr. Yadav from the managing directorship of the corporation. In his place Miss Neeta Chaudhary, I.A.S. is reported to have been posted.

* * *

THAILAND DRAWS BLANK

Readers are aware that the government of Thailand presented a proposal to the government of India, aimed at co-operation between the two countries in regard to exploitation of marine fisheries resources of the Indian EEZ. The Thai team held discussions on the subject with the representatives of the Government of India. Unfortunately, it is understood, the proposals, mainly aimed at inducing Thai vessels for fishing in Indian waters under certain terms and conditions, were not acceptable to the Government of India and a few additional clauses were suggested which were not acceptable to the Thai side.

JAPANESE ASSISTANCE

It is understood that Japan has made an offer to the Government of India to construct and supply one purse-seiner and one long liner for operation by EFP, under its aid programme. The proposal, it is gathered, is now under the active consideration of the Government of India.

* * *

SUDERSHAN APPOINTED AS DY.COM. (FISHERIES)

Mr. D. Sudershan, hitherto, deputy director, exploratory fisheries project, Bombay, has been appointed as deputy commissioner (Fisheries) in the ministry of agriculture. It is expected that he will take up his new assignment in September 1982.

* * *

FARTC, DHAULI

A computer is expected to be installed at the fresh water aquaculture research and training centre, Dhauli for analysing the data available for a period of over a period of 10 years and for routine use at the centre. Studies on economic modelling have also been initiated at the centre and available data are being iterated to estimate various parameters of the model.

Short and long term cryo-preservation of milt is also being up at the centre, besides studies on nutrition of brood stocks.

* * *

MASSIVE FISH DEATHS IN KANKARIA LAKE

Large scale mortality of Tilapia in Kankaria Lake in Ahmedabad created a major problem to the municipal authorities, who were intrigued over the sudden death of th fish. The fish were introduced in the laks by the state fisheries department.

500 fishermen and their families were displaced by the corporation to clear the dead fish. Several trucks were used for carrying the dead fish to the sewage farm at the outskirts of the city. It is believed that the deaths occurred on account of pollution caused by effluents.

* * *

PRAWN FARMING UNIT OF MPEDA AT MACHILIPATNAM

In January 1982 MPEDA located their third regional unit for prawn farming at Machilipatnam. This unit is in charge of promoting the development of prawn culture in A.P. and Tamilnadu. The unit is engaged in extending technical assistance to prawn farmers covering the various links of the activity. The unit proposes to establish a demonstration farm near Machilipatnam. In course of time, every coastal district in Andhra Pradesh

and Tamilnadu is proposed to be covered by a demonstration farm.

Five private ponds will be selected in the coastal districts of A.P. to demonstrate the culture technique to the farmers. MPEDA will provide a subsidy of Rs. 8,000/- to each of the coastal farmers towards cost of construction and raising the first crop of prawns. The unit will arrange for the supply of the various inputs to the farmers at a reasonable cost.

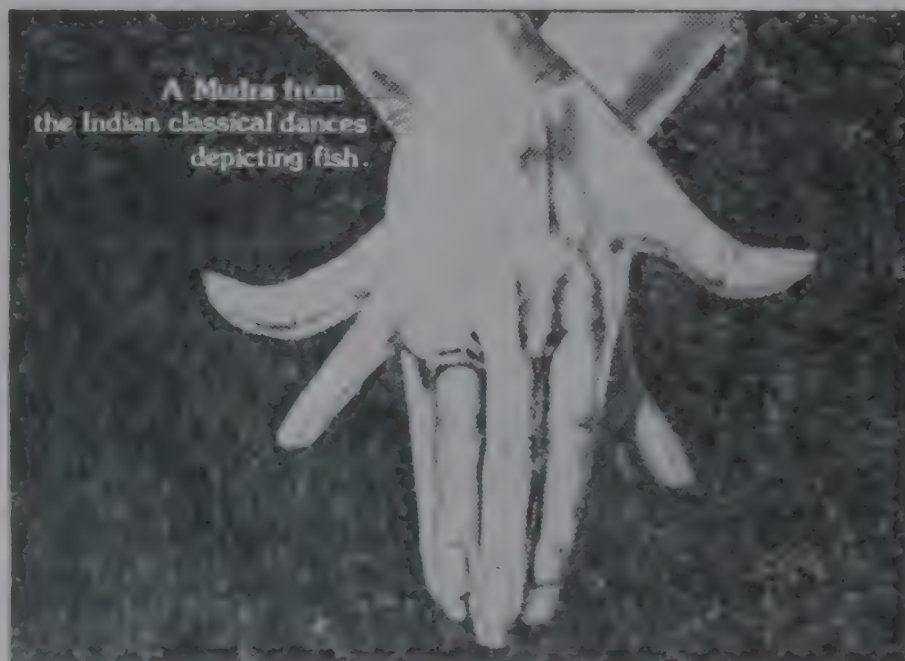
Construction of demonstration ponds at Tallapalem near Machilipatnam is already in progress. A few prawn farmers had already been selected for technical assistance.

A hatchery in an area of 12 acres has been set up at Tallapudi near Munginapudi beach to supply seed to the farmers at reasonable rates.

RECORD GROWTH OF WHITE PRAWNS

The prawn culture laboratory of the Central Marine Fisheries Research Institute (CMFRI) at Narakkal (Kerala) has achieved a record harvest of white Prawn (*Penaeus indicus*) after 49 days of culture in a paddy field. Tiger and white prawns farmed in the brackishwater areas in the coastal zones of India grow faster and attain marketable size within three to four months. The scientists at Narakkal have now succeeded in cultivating white prawn to marketable size within 49 days. This is the first time that such a fast growth-rate in the cultivation of white prawn has been achieved. The success was achieved in a recent field experiment conducted at Narakkal near Cochin. The faster growth achieved will enable farmers to reap three to four harvests in a year by providing

Fish has always been there in our past. It will always be in our future.



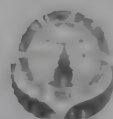
A Mudra from the Indian classical dances depicting fish.

Legends, Lore, Imagery, History, Customs. And ancient trade with the world. Fish has an ageless association with the Indian way of life and culture.

And today this association is even deeper. Marine products are now a major source point of our national growth and well-being.

The marine products industry supports more than four million people. It is a major influence on the economic activity on the entire Indian peninsula. It brings in foreign exchange worth over Rs 250 crores every year.

Yes, Fish is our hope of the future.



**THE MARINE PRODUCTS
EXPORT DEVELOPMENT
AUTHORITY**
MG Road
Cochin 682 016, India

necessary inputs and management of culture operations.

Commenting on the success achieved by scientists of Narakkal Laboratory, Dr. E. G. Silas, Director CMFRI, has said that this would enable traditional prawn farmers to take atleast three harvests of valuable white prawn in eight to nine months of the year when there would be no paddy cultivation.

Detailing the method of experiment, Dr. Silas said that the experimental field was stocked with white prawn seed produced in the hatchery at Narakkal from prawn parents belonging to F-3 generation. The seeds weighing 0.1 gram were stocked at the rate of 44,000 per hectare on February 1, 1982. They attained marketable size of 135 mm and weighed 17 grams each on March , 1982 when they were harvested. About 60 prawns of this size weighed one kg. and production from this culture operation was at the rate of 593 kg. per hectare in 49 days. The income earned was Rs. 23,700 per hectare at the selling rate of Rs. 40 per kg. The recovery rate was 82 per cent of the stocked prawns. The entire culture operation was carried out utilising food available naturally in the field.

More and more farmers are taking to shrimp culture on a large scale and the Institute is endeavouring its best to promote prawn culture through organised training programme and consultancy programme undertaken by the Institute's Krishi Vigyan Kendra.

* * *

TO BURMA AND FRO

Two years back during the month of August, five fishermen and a fisherboy from Bhairavapalem, a fishing village in Andhra near Godavari mouth, left for

fishing on a motor boat. China Koralayya, 55; Sanjamgiri Tata Rao, 40; Tekumudi Apparao, 35, Pinni Ramulu, 30, and a kid, Bandana Bhirava Swamy, 15, were just a couple of hundred yards from the shore when they found their engine died.

All of them engaged themselves in repairing it. They opened the gear box and tried to fix. Meanwhile they found that their boats was caught in the current and drifting. Sensing the danger, they improvised a small floating contrivance from the material available on board. All of them shifted from the sick boat. But after sometime the engine man China Koralayya took Bhiravaswamy and swam towards the sick boat to try again. When they reached their boat it was already on a steady speed moving off away from shore. Other waited on the improvised contrivance.

SOON darkness fell. When the sun rose the boat and the contrivance disappeared from each other's sight. The motor boat was in the open sea and the occupants realised what had happened. They missed their land, drifted into unknown sea. The kid, Swamy, fell unconscious. The older man China Koralayya kept himself busy repairing the engine. But the engine could not be repaired.

Thirty seven gruelling days passed. They lived on sea water and occasional rain drops. The boat, at last reached land but it was a foreign land, Burma.

They were picked up by the Burmese boatmen and they were taken into police custody. They were there for two months and were later flown to Rangoon. China Koralayya wrote to his wife from there. Fate of the other three, who stayed back on an improvised structure was not yet known. They were presumed to be dead.

The Burmese authorities sent the two men to Calcutta and from there they reached Samalkot by train.

An official enquiry on the other three who were left behind confirmed their death. Under Government rules the heirs of the dead were eligible for ex-gratia payment. In spite of the district Collector's sanctioning the amount they have not yet received the payment.

The readers may recall similar incident when three Burmese fishermen drifted to India and landed near Gudur and who had been staying in India ever since in the corridors of the taluq office of Gudur.

There seems to be a regular sea current that makes the tragedies of this kind occur between Burma and India. The route that led these fateful fishermen, both of India and Burma was perhaps the same. While Indian fishermen came back to India, the Burmese fishermen are awaiting their redemption from the Indian Government.

* * *

SEA WEED CULTURE HAS BRIGHT PROSPECTS

Sea weeds, if used as food, gives the consumer several trace elements which are far less in the terrestrial edible vegetation. They also contain more vitamins and substances of stimulatory and antibiotic nature. These protein rich sea weeds are abundant in the Indian coastal waters and this has to be exploited to maximum levels to meet the demand of the growing population, says a report on 'Marine algal resources of the Indian Coast for research and development' issued by the National Institute of Oceanography, Goa.

The report says that systematic exploration of sea weeds on regular

basis should be organised to meet the needs of existing deficiency in the food that is consumed by an average Indian. It has reported that this has become more important since 60 per cent of Indians are vegetarians.

On other benefits from the sea weeds, the report reveals that marine algae, otherwise called sea weeds, could be an important substitute for the manufacture of alginates, agar agar, and carrageen which are being used in the textile industry, and in the manufacture of drugs and paper in India. The report says that India imports about 30,000 Kg. of agar agar worth Rs. 42 lakhs and 60,000 tonnes of alginate worth about Rs. 36 lakhs. Exploitation of sea weeds would help a lot in these industries, the report suggested.

Efforts are on the way by the scientists of NIO to extract pharmaceutical compounds from the sea weeds.

BREAKTHROUGH IN PEARL OYSTER CULTURE

Central Marine Fisheries Research Institute of the Indian Council of Agricultural Research based at Tuticorin, foresees a significant growth of pearl oyster farmers in the country.

Though the culture of pearl oyster was achieved under laboratory conditions sometime back. It could not be commercialised so far. The supply of mother oysters is dependent on the natural resources from the Gulf of Mannar and the Gulf of Kutch. According to Dr. E. G. Silas, Director, CMFRI, the Institute can now provide the farmers with the seed of pearl oysters in millions. He said that the Institute also has achieved success in developing technology for production of good quality pearls of all ranges.

The research of the CMFRI has opened new possibilities for making the pearl culture a major industry in India.

MPEDA IS NOW REGISTERING AUTHORITY FOR EXPORTS

As per Circular No. 15/82 dated May 11, 1982 issued by the Chief Controller of Imports and Exports, New Delhi the Marine Products Export Development Authority has been designated as the Registering Authority for fish meal, fish products and marine products. The exporters should be sponsored by the State Directors of Fisheries and registered with the MPEDA as an exporter.

Part-II of the prescribed application for the Registration-cum-membership certificate should be filled in by the Director of Fisheries concerned. If it is convenient to the exporter, he can get the form filled in even by the MPEDA.

PACKING IS A STRONG MARKETING TOOL

Mr. V. Venkataraman, Additional Secretary, Ministry of Commerce, while delivering inaugural address at the Seminar on Packaging and Packing of Marine Products held in Bombay on 22 May 1982 said that packaging was a strong marketing tool. He said that almost all the marine products in India were now packed in institutional sizes. He said that by switching over to consumer packs our exporters would better their income by a larger margin.

Mr. R. C. Choudhury, Chairman, Marine Products Export Development Authority said that successful

food packing should be capable of attracting attention and generate interest in consumers of the importing countries. He suggested that a brand image may be created through consumer packs.

Mr. M. R. Subramanian, Director, Indian Institute of Packaging said that Indian packages were yet to be developed in more attractive forms. He stressed that the available expertise and technology in India should be geared to meet the challenge.

Mr. S. N. Rao, Director, MPEDA proposed a vote of thanks.

During this one day seminar which was organised by the joint efforts of MPEDA and IIP, eight papers relating to several problems and aspects of packaging and packing of Indian marine product were presented.

180 MILLION OLD FISH FOSSIL

A complete fish fossil was discovered by a group of paleontologists of Geological Survey of India. It is now on display at the Indian Museum at Calcutta. The fossil is said to be 180 million years old.

The extinct fish was identified as 'Lepidosteus decansis'.

The earliest recorded fossilised fish from India was found in Spiti valley in Himachal Pradesh. It was reported to have existed some 320 million years ago and belonged to lower carboniferous age.

It was said that the bony fish, Gar pike, zoologically called Lepidosteus, found in the American fresh waters, is the modern relative of this fossilised fish.

**SEARCH FOR MISSING
FISHERMEN OF ANDHRA COAST**

A Naval helicopter joined the search along with another fifteen country boats for five fishermen whose boat was reported to have capsized 18 kilometers off Uppala, East Godavari District Andhra Pradesh.

The port authorities of Kakinada have requested the incoming and outgoing ships to look out for the missing fishermen.

Mr. D.K. Panwar, Collector of East Godavari District met the family members of the missing fishermen and assured them of all help from the government.

**INDIAN SEAFOOD TRADE FAIR
AT MADRAS**

The fifth Indian Sea Food Trade Fair, a biennial event, would be held at Madras for the third time during February, 11 to 13, 1983.

The Fair draws large number of importers from all over the world. Last time it was held at Madras, over 70 foreign buyers attended the fair.

**MECHANISED BOAT OPERATORS
COMPLAIN TO PRIME MINISTER**

A complaint on general insurance companies for not settling the insurance matters of the mechanised boat operators was sent through a telegram to the Prime Minister of India, Mrs. Indira Gandhi, and the Union Finance Minister, Mr. Pranab Kumar Mukherjee.

The complainant, Andhra Mechanised Fishing Boat Operators Association, mentioned in their telegram that these insurance companies were not even bothered and were reluctant to insure their boats.

Mr. Kosaraju Rama Rao, President of the Association said that in spite of Central Government's instructions two years ago to insure mechanised fishing boats, the insurance companies are unwilling to do so.

Mr. Ramarao said that discussions were held between the state government and the representatives of insurance companies at Hyderabad in this connection.

He said that there were 500 mechanised fishing boats operating from Kakinada and Machilipatnam. About one lakh families were depending on fishing industry in these two towns, he said.

Enquiries with insurance companies reveal that there was no truth in the allegation that they were reluctant to insure mechanised fishing boats. There was a strong suspicion that, for reasons best known to the operators, they were indulging in deliberate acts of sinking of boats in order to get insurance money. Unless this trend was stopped, it was said that it would be difficult for insurance companies to take on added commitments.

M.P. SEEKS DANISH AID

An amount of Rs. 9.55 crores was sought by the Government of Madhya Pradesh from the Danish Government to increase fish production by 10,000 tonnes.

The request for the assistance was intended to cover 14 districts of Madhya Pradesh for a period of 7 years. The proposed project covers an area of 9 lakh hectares of reservoirs and 9000 hectares of ponds for fish farming. Besides, the programme includes production of 50 million fingerlings per annum from hatcheries.

MYSTERY OF MARY'S DEATH

Mary Vakkacham was employed for peeling prawns in a sea food factory at Veraval. She was brought by Mr. K. S. Norbert, a labour contractor, from Kerala. Her two sisters too worked in the same factory. They shared a room in the labour quarters of the factory.

Two months before the Christmas of 1981, Mary was called to Norbert's room. She refused, according to Ammani, one of the sisters of Mary. 'She was dragged', she said. When she returned after an hour and a half she had blood marks on her skirt. She collapsed and said nothing. Next morning she told her sisters that she was raped. Subsequently, health of Mary showed signs of deterioration. According to Ammani, she was subjected to severe tortures. Three days after the Christmas, the two sisters were told that Mary was dead.

At municipal hospital it was reported after post mortem that she died of 'inflammation of cerebral tissues and toxicity of illness'. The report also said that there were no external injuries on the body.

Later a local Keralite, Mr. T.P. Wilfred was beaten outside the factory premises. He said that he went to the factory along with Mary's family friends and her uncle who had come there on hearing of the news of her death.

When Mary died the police did not record the statements of her sisters, Ammani and Vittamma. There was no statement taken from Father Joseph who conducted the funeral rites. He was reported to have been some branding marks on the body of the dead girl. Even though the sisters of Mary, Ammani and Vittamma stayed at the factory till February 1982, and complained to police to look into the matter of their sister's death, nothing happened.

However, action committee of local malayalees and the father of Mary, appealed to the Chief Minister of Gujarat to look into the matter. The state government took immediate steps to induct the crime branch to investigate the case afresh. A police officer was sent to Kerala to take versions from Mary's father and her sisters.

The case is still under investigation.

PLANNING COMMISSION ENVISAGES FISHING HARBOUR AUTHORITY

Setting up of an independent fishing harbour authority has been mooted by the programme evaluation organisation of the Planning Commission.

In a recent evaluation report on fishing harbours in India the programme evaluation organisation recommended that the proposed authority would be responsible for planning and construction of the fishing harbours and maintenance. It was suggested that the authority should also look after the problems of mechanised boats and trawler owners. A proper record would be maintained on fish landings, boat operations, price and the marketing of the products.

A separate administrative body would look after the registration of all mechanised boats and trawlers. At the moment the fishing harbours at Visakhapatnam and Cochin are under the administrative control of respective port trusts while those at Karwar and Tuticorin are under fisheries departments.

The evaluation report said that major commercial houses in the country were showing considerable interest in the development of fishing industry at Visakhapatnam, Cochin and Port Blair and the utilisation had reached the optimum

levels at these places, besides Karwar, the report said. Therefore, it was felt that expansion programmes should be undertaken in these areas.

The report had also observed that a considerable growth in the usage of harbour facilities took place.

The report had also taken note of the problems relating to the demarcation of zones for traditional fishermen and mechanised boats. It had been under the perusal of Central Government and suitable guidelines had been issued to all coastal states to solve the problem, the report said.

A special programme to improve the living conditions and operational methods of traditional fishermen was recommended. A fishery extension organisation should undertake to train the traditional fishermen to adopt modern technology, it was suggested.

A special emphasis had been given by the government to improve the handling, storage, processing, and transportation of fish besides provision of basic infrastructural facilities, in view of the targets set to be achieved by the end of the Sixth Plan.

PROGRAMME TO DEVELOP SKILLS IN PACKAGING

The Indian Institute of Packaging, Bombay, has undertaken a training programme to develop skills and impart modern technology in the field of packaging from July 5 to September 30, 1982.

The Certificate course is being conducted for graduates and diploma holders with three years experience in packaging, purchase, design and marketing.

The course costs Rs. 7,750/- for the members of IIP and Rs. 3,000/- for others.

The fee covers tuition, course material, working vegetarian lunch and local transportation for industrial visits.

The training is being provided under direct supervision of Joint Director, (Training and Education) Indian Institute of Packaging E-2, MIDC Area, Chakala, Andheri (East) BOMBAY-400 093.

EXTRACTION OF SHARK FIN RAYS

The scientists of the Central Food Technological Research Institute, Mysore have achieved success in evolving easy methods in extraction of shark fin rays. When commercially applied the process is expected to prove considerably valuable in the export of value-added shark fins.

There is high demand for this commodity in Singapore, Hong Kong and Malaysia.

EXIM BANK HELPS JOINT VENTURES

Those who intend to have joint ventures in the Third World Countries would be provided with financial assistance from the Exim Bank of India. This is still under consideration but likely to materialise soon.

These loans would be provided in Indian rupees initially but later in foreign currency of the country in which the joint venture operates.

The Exim Bank has started lending operations from March 1, 1982. It also took over the responsibilities of export loans and guarantees from the Industrial Development Bank of India.

CHARTERS

M/s Varuna Marine Products Private Limited, New Delhi, have

en permitted by the Government India to charter five pairs of all trawlers from Trans Oriental Private Limited, Singapore for a period of 3 years.

This charter is renewable at the end of the stipulated period for one year at a time for a maximum of three years.

M/s Peejay Indi-Bulgarian Fisheries Ltd., New Delhi was also permitted to charter one 54m. long trawler from Bulgaria. The trawler would however be of Turkish registry.

The application of Tata Oil Mills for chartering Soviet vessels from Larissco, Singapore is still pending with the government. The application of M/s Navabharat Ferroloys, Visakhapatnam for chartering trawlers and gill-netters from Hongkong is stated to be pending with the Minister for Agriculture for approval.

A few other applications were considered by the Inter-Ministerial Screening committee on 4 August 1982 and it is stated that four or five applications were cleared by the committee.

* * *

CHECKING ILLEGAL FISHING BY FOREIGN VESSELS

It will be recalled that sometime back a Madras Court ordered the release of apprehended Taiwanese fishing vessels on the ground that the Naval Officers who caught them had no authority under law for such an action.

Consequently, the Government of India has now authorised the commissioned officers of the Navy, in addition to the coast guard to exercise the powers conferred under section 9, (i) of the Maritime Zone of India (Regulation of fishing by foreign vessels) Act, 1981. This section provides for seizure, detention and search of any vessel, if it is found fishing illegally in the Indian maritime zone.

This amendment ensures an effective control over illegal fishing indulged in by foreign fishing vessels in the maritime zone of India.

* * *

NEW EXECUTIVE COUNCIL OF AIFI

The following were elected as the new members of the Executive Council of Association of Indian Fishery Industries for the year 1982.

President:

Mr. N.P. Singh, (Tata Oil Mills Company Ltd)

Vice President:

Mr. V.S. Prasad (Pron Magnate Private Ltd, Visakhapatnam)

Honourary Secretary:

Mr. R.K. Rastogi (Union Carbide India, Visakhapatnam)

Honourary Treasurer:

Dr. A.N. Chosh (State Fisheries Development Corporation Ltd. West Bengal)

Member:

Mr. R.D. Pusalkar (Immediate Past President)

Member:

Mr. S.K. Hajari (I.T.C. Ltd)

Member:

Mr. Mukherjee (Britannia Industries Ltd)

Member:

Mr. N.S.H. Prasad (Srinivasa Sea Foods)

Member:

Mr. N.K. Sawhney (Mazagon Dock Ltd.)

Coopted

Member:

Mr. S. Sudereshan (Kerala Fisheries Development Corporation Limited)

FISHING PASSES

At present Indian fishing vessels also have to obtain customs passes at the port town on their operation before they sail on a voyage. These passes will be valid for a period of 35 days. The Association of Indian Fishery Industries feels that this system should either be scrapped or their validity extended upto three months. The Association has decided to make a representation in this regard through the Ministry of Agriculture to the Customs Authorities.

* * *

LOADING OF FROZEN CARGO AT VISAKHAPATNAM

For quite sometime past, the exporters of frozen marine products from Visakhapatnam had been experiencing difficulties with the dock labour in the loading of their cargo into the ships. On the insistence of the dock labour the exporters had been paying extra money, over and above the normal charges. This situation was brought to the notice of the MPEDA by some of the exporters.

Thereupon the MPEDA took up the matter with the Chairman of Visakhapatnam Port Trust. The Chairman, Mr. T.R. Prasad, took up the matter immediately with the Dock Labour Board and wanted this anomalous situation to end immediately. As a result, at the recent loading of cargo, several senior officers of the port trust and the dock labour board were present and the loading was done without the payment of any extra money.

The workers have now promised to extend their full cooperation and not to demand any extra money. However there is a proposal to arrange a meeting of the workers representatives and those of the exporters to work out a scheme under which some incentive can be given to the workers.

INDIAN TEAM'S VISIT TO INDONESIA AND PHILIPPINES

As a follow up action to the International Conference on deep sea fishing held in Delhi recently, considerable activity seems to have been generated in the ministry of agriculture. In view of the impression gained that the pattern of development adopted in Indonesia and in Philippines is suited for adoption to Indian conditions, a delegation was expected to leave in the first week of August 1982 to visit these countries to study tuna fishing operations and the other activities and to sea possibilities of joint ventures with fishery enterprises in those countries and obtaining vessels on charter. The visit of the delegation lasted for 8 days.

Mr. S.P. Jakhanwal, Joint Secretary to Fisheries who was already in Manila to attend an FAO workshop joined the delegation which consisted of representatives of Karnataka Fisheries Development Corporation, Orissa maritime and Chilka Lake Development Corporation, Mr. S.K. Das, Assistant Commissioner (Fisheries) in the Ministry of Agriculture and Mr. N.P. Singh, President of Association of Indian Fisheries Industries.

SPECIAL ATTENTION TO EEZ MATTERS

It is understood that the Ministry of Agriculture is seriously considering a proposal to appoint an officer in the rank of Joint Commissioner (Fisheries) to look after matters connected with a development of fisheries in the Indian exclusive economic zone.

N.P. SINGH AND V.S. PRASAD TO VISIT NORWAY

At the invitation of the International Organisation of Employees Conference in Norway

Mr. N. P. Singh and V. S. Prasad visited Norway as part of a team sponsored by the employees federation of India. The conference was held 23-28 August 1982 at Trondjhim, Norway. Representatives from 12 countries such as Ngrm, Panama, Bangladesh, Ghana, Ice land, Spain, Mexico, Japan and India attended the conference. The programme concluded a study of work of trawlermen aboard a trawler and a visit to a navigation school in the area.

HINDUSTAN PETROLEUM CORPORATION'S NON-COOPERATIVE ATTITUDE

It will be recalled that a Souvenir was brought out on the occasion of the recent International conference on deep sea fishing held in Delhi. When the organisers approached the Hindustan Petroleum Corporation for an advertisement to be inserted in the souvenir, it is understood that it was refused. This is greatly resented in fisheries circles. It may be mentioned here that the diesel oil sales of HPC at Visakhapatnam alone for fishing vessels per annum are over Rs. 8 crores.

CIFNET UNIT AT VISAKHAPATNAM

After undergoing training for six months at CIFNET units at Cochin and Madras, the trainees of its Vizag unit returned back recently.

Not much progress is seen in the activities of CIFNET unit at Visakhapatnam. Workshop facilities have not yet been provided and there is not much improvement in the position of the teaching staff.

There is a general feeling that step-motherly attitude is being shown by the Cochin institute towards this unit. There is also a talk that Mr. Eapen has been posted as Deputy Director for the Unit.

CAMPMAN VISITS VISAKHAPATNAM

Mr. Campman, representative of Damen Shipyard, Holland, visited Visakhapatnam on 30th July to assess the performance of the trawlers supplied to Indian parties by the shipyard. It is understood that the owners complained to him about the heavy additional expenditure they had to incur in making various additions on the working deck. They were also resentful that the Shipyard did not supply any inventory items relating to the engine room, galley, crew quarters etc. In contrast to this, all the vessels supplied to Indian companies by De Hoop Shipyard were provided with various inventory items.

R.C. CHOWDHURY TRANSFERRED

Mr. R.C. Chowdhury, Chairman, Marine Products Export Development Authority has been posted as Secretary, fisheries and ports, Government of Kerala. He handed over charge to Mr. S.N. Rao, Director, MPEDA on 29th July 1982.

JAPANESE SEA FOOD STUDY TEAM VISITS INDIA

A three member team sponsored by the Tokyo Fishery Development Corporation visited Bombay, Cochin, Madras and Calcutta from 26th July 1982 to 3rd August 1982. The object of the visit was to study the present state of production, marketing and activities relating to dealings by Japanese Trading Houses and companies. The team consisted of Mr. Hagiwara, Secretary General, Japan Marine Products Importers Association, Prof. Akira Nakai, marine products, marketing expert from Tokyo university of fisheries and Mr. Khiroshi Nakai, a nutritional expert.

Mr. T.M. Joseph, Chairman of M s. George Maijo hosted a party

at Madras on 29th July in honour of the visiting team.

* * *

KEROSENE SUPPLY FOR FISHING VESSELS

The Government of India has allotted a special kerosene quota to Kerala fishermen in order to meet the specific requirements of fishing boats using out-board motors run by kerosene. About 1000 boats fitted with out-board motors in Kerala will be benefitted by this special quota.

* * *

JET BOAT FOR PATROLLING IN KERALA

A jet boat for sea patrolling was launched at Cochin on 28th July 1982 by the state department of fisheries. The boat was acquired at a cost of Rs. 23 lakhs and would be used to prevent poaching by foreign fishing vessels in Indian Waters and also for rescue operations.

* * *

TRAINING: MANAGEMENT OF FISH FARMS

The Central Institute of Fisheries Education conducted a short term training programme on management of fresh water fish seed farms at the brackishwater fish farm, Kakinada. The course commenced on 4th August 1982. It was inaugurated by Mr. K.H. Alikunhi and presided over by Dr. S. Dutt of Andhra University.

The Central Institute of Fisheries Education has also announced a three week management course on brackish-water fish farming commencing from 7th September 1982 at their Kakinada centre.

* * *

MORE REEFER FACILITIES FOR PORTS

A working group set up by the Union Ministry of Commerce has recommended that more facilities should be provided for handling

reefer container at all ports and that the reefer sailings from ports such as Visakhapatnam, Madras, Paradeep, Calcutta and Mangalore to destinations in the USA and Europe should be augmented. The report of the working group headed by Mr. Shah, Director in the Ministry was finalised recently at Cochin.

The recommendations would be welcomed by the marine products export industry. It is anticipated that over 1.50 lakh tonnes of frozen marine products could be exported from India by 1984-85. The availability of reefer facilities would enable increased exports to Europe and West Asian countries.

At present only Cochin and Bombay are well served by reefer sailings to all destinations. On account of this, exporters are forced to tranship their cargo by road from ports like Visakhapatnam and Madras to Cochin for shipment. This has increased costs and the long road journey often spoils the products. The working group observed that national shipping lines were unable to call at some of the ports owing to insufficient generation of cargo. Most of the movement of frozen cargo was being done mainly by foreign shipping lines only from Bombay and Cochin. The result was that the reefer space in national carriers was remaining underutilised which was resulting in improper maintenance of reefer chambers.

The working group feels that the establishment of large cold storages by MPEDA is not profitable. It may be mentioned here that MPEDA is building two storages one at Cochin with a capacity of 500 tonnes and another at Calcutta with a capacity 300 tonnes. The Cochin storage will be commissioned shortly. The Calcutta storage is expected to be completed during the year.

5TH INTERNATIONAL SEA FOOD CONFERENCE V S PRASAD AND S N RAO TO BE MPEDA'S DELEGATES

The Fifth International Sea Food Conference, sponsored by Erskine sea food letter and the sea food conference international, Washington is scheduled to be held in Tokyo, from 25 to 28 October 1982. A large number of delegates are expected to participate in the conference. On behalf of MPEDA, Mr. S.N. Rao, Director, MPEDA and Mr. V.S. Prasad, Vice-President, Association of Indian Fishery Industries will attend the conference.

* * *

GIANT CATLA

4th August 1982 will remain in red letters in the annals of Malampuzha fish farm in Palghat district of Kerala. On this day, while conducting fishing in the farm, the farm staff netted a huge catla which weighed 47 kg. The fish was 1.17 metre long. This fish must have been remaining in the pond for a few years, eluding capture all long.

* * *

COCONUT DAY

Sravan Purnima is a traditional festival day. It is known as 'Coconut Day' to fishermen along the North West Coast of India. This day represents the end of the turbulence of the sea on account of the south west monsoon season. On this day fishermen resume their normal fishing activity.

Thousands of fishermen thronged this sea shore on 4th August 1982 (Shravana Purnima) in Bombay city and other places in Maharashtra. They threw coconuts in the sea. The fishermen and women in their traditional costumes worshipped the Sea God with a prayer that He may remain calm and allow them to resume their fishing activity. Being also the Rakhi festival day sisters tied Rakhis on the wrists of their brothers.

LICENCE FOR FROGLEGS EXPORT

From now onwards, all India exporters of froglegs have to obtain a procurement certificate from the Chief Warden, wild life, of the respective states for export of froglegs. From now onwards, Export of froglegs will not be permitted without the production of these certificates before the customs authorities.

INDIAN SEA FOOD DAY PROGRAMME IN WEST EUROPE

Arrangements are under way for the holding of the Indian Sea Food Day in eight West European cities from 5-29, November 1982. It is expected that a team of 4 representatives drawn from the Sea Food Export Industry, President of Association of Indian Fishery Industries and one of the representative from public sector corporations will be sponsored by the MPEDA, to participate in the programme. The names to be selected seems to be will be out of Mr. V.M. Shah of Rallis India, M. Cherian Thomas of Poopally Foods, Alleppey, Mr. Ahmed Usman of Abad Fisheries, Cochin, Mr. Manu Mahtani of castle rock fisheries, Veraval, Mr. S. Franklin of Fibrite Fisheries, Cochin and R.K. Rastogi of Union Carbide, Visakhapatnam. So far as representative from Corporations is concerned either Mr. Vijayranchan of Gujarat Agro Marine Products or Mr. V. Sankarasubbaian of Tamilnadu Development Fisheries Corporation may be sponsored.

The purpose of the programme is to conduct Indian Sea Food Day in the various cities to popularise the Indian Marine Products in the various countries.

EURO-AGRI-MART III, 1982-- WEST EUROPE

It is understood that MPEDA has selected the following persons to participate in the EURO-AGRI-MART III, 1982, to be held from 31 October to 17 November 1982, with assistance from CBI Rotterdam, 1) Mr. B.S. Dalal,

Monarch Sea Foods, Veraval, 2) Mr. Theodore Selvaraj, Tamilnadu Fisheries Development Corporation, 3) Mr. P. J. Abraham of George Maijo, Vizag and 4) Mr. P. J. Kunju Kunju, Export Manager, Chemmeens, Cochin. A representative from MPEDA will also be nominated.

INTERNATIONAL

NEW RULES FOR PEN CULTURE IN LAGUNA BAY, PHILIPPINES

The Government of Philippines have decided to implement new regulations to regulate the operation of fish pens in Laguna Bay. These regulations were proposed by the Laguna Bay Authority and approved by the Government. Under these rules, removal of fish pens that block the navigational ways would be undertaken to allow small fishermen access to the lake's fishing grounds. It was also decided that the size of fish pens set up by companies should be reduced to 20 hectares from the present 50 hectares. It is envisaged to permit a larger number of small fishermen to own fish pens in the lake.

2,574 hectares out of a total extent of 9434 hectares are covered by 58 fish pens controlled by 7 major fishing companies. A good part of these pens have now to be demolished under the new rules. Serious doubts are expressed whether it would be possible for the government to undertake the demolition, as there are powerful interests working against this.

NORTH KOREA SEIZES JAPANESE AND SOUTH KOREAN FISHING BOATS

A North Korean Naval vessel seized two Japanese and one South Korean fishing vessels, stated to be operating at the time in international waters in the sea of Japan. This was the first capture of Japanese fishing vessels by North Koreans, since a non-official agreement between the two countries expired at the end of June 1982. A pro-North Korean parliamentary group from Japan has planned to visit North Korea to negotiate the renewal of the agreement, but visas were not given by north Korean authorities.

More than 300 South Korean fishing boats operating in the area off the east coast were advised by the government to return to port. So far 114 boats were stated to have complied with the instructions.

MALAYSIAN FISHING BOATS HELD

Indonesian Naval patrol had seized 18 Malaysian trawlers operating illegally in Indonesian waters, according to a spokesman

of Indonesian Navy. It was stated that this was the biggest capture in the area. 33 crew members were being held in Medan, North Sumatra. At least 12 trawlers escaped from capture when Indonesian patrol boats surprised them near the Jamur Batu Mandi islands.

HOW ACID RAIN IS KILLING FISH

Heavy industry is slowly but surely killing off the world's freshwater fish.

They are dying in lakes and rivers as far apart as Canada, Czechoslovakia, East Germany, Scotland, Sweden and the United States.

In Sweden, for example, there is no more fishing in 18,000 of the country's 85,000 lakes.

The causes and curses were debated in Stockholm at the three-day 33-nation Acidification of the Environment Conference.

The conference was attended by delegates from industrialised countries which are responsible, according to experts, for ruining the world's environment with the sulphurous fumes emitted by factory chimneys.

The fumes work their way into the atmosphere and pour down on to the earth below as a highly poisonous acidic rain, which flows into rivers and lakes, especially when the soil lacks calcium.

This is the case in Canada and Sweden.

At the conference, ministers and senior civil servants from 33 developed nations studied reports, drawn up by experts, denouncing the ruinous effects of industrial sulphurous fumes on rivers, lakes,

forests, monuments, the climate and—in the long run—on human health.

Thirty years ago, Sweden was the first country to realise that there was a cause-and-effect relationship between the pollution of their lakes and the fume-laden winds blowing from Europe.

They were instrumental in the installation of air-measuring stations. Sweden alone has 200.

Several international organisations studied the position and in 1979, 33 countries signed a convention on the Quality of Air—which has yet to be ratified by the Parliaments of 24 of them.

A Swedish report claims that 100 million tonnes of sulphur pour into the skies annually, adding to the earth's natural pollution.

In Sweden, in 1978, factories produced an estimated 300,000 tonnes of sulphurous fumes, of which 100,000 tonnes rained on the country.

An additional 380,000 tonnes was blown here from Europe—including 40,000 tonnes from Britain, 30,000 tonnes from West Germany, 30,000 tonnes from East Germany and 10,000 tonnes from France.

Experts believe that developing countries, too, might soon be threatened with this type of pollution.

Ominously, smog seen over the Antarctic in winter and spring is believed to be caused by industrial fumes.

But there are technical ways of preventing the worst effects of acidification, and their effectiveness was debated at the conference.

One thing is certain—delegates did not share the same optimism expressed at the UN environment conference 10 years ago.

FLOATING FISH SEED FACTORY

A fishing vessel has been converted in Russia to serve as a floating fish seed factory. This vessel is lying anchored in the Volga river near the town of Kuibyshev at present. This is the only vessel of this type in Russia and possibly for the entire world.

This vessel was built by Astrakhan Ship Builders and was on display at an exhibition, where it generated considerable interest among technologists studying problems of fish breeding and raising fish seed. The vessel is run on energy provided by 2 diesel motors and on electricity fed from the shore. The vessel is fully equipped with a laboratory, a fodder producing unit, and a large hatchery. She has accommodation for the staff. The experimental unit in the boat has provision for breeding of fish and raising of fry.

DETERMINING AGE OF SHRIMP

It is reported that Dr. George Ettershank, a Zoologist at Monash University in Melbourne, discovered that Lipofuscins in shrimp tissues could be extracted by solvents. The Lipofuscins when measured by a spectrofluorimeter indicate the physiological age of shrimp. It is stated that Lipofuscins are 'Cellular garbage' that collects in the cells of aging animals. A knowledge of this indicates the age of the animal. Studies in this line may shed light on the growth patterns of krill, the tiny Antarctic marine crustacean which happens to be one of the world's largest protein sources. A knowledge of the growth patterns will enable the formulation of harvesting levels in such a manner that exploitation can be undertaken at sustainable levels.

THE TOP TWENTY

There are scores and scores of Marine Products Exporters. It will be interesting to know the names of the 20 companies at the top, determined on the basis of the value of their exports during 1981-82. Here are the names, starting from the top.

- (1) M/s. Madras Pack Marine, Mandapam, Tamil Nadu;
- (2) M/s. Abad Fisheries, Cochin, Kerala; (3) M/s. Baby Marine Exports, Quilon, Kerala; (4) M/s. Britannia Industries Ltd. (Frozen Foods Division), Bombay, Maharashtra; (5) M/s. Southern Seafoods Pvt. Ltd., Madras, Tamilnadu; (6) M/s. Kala Cartons Pvt. Ltd., Madras, Tamilnadu; (7) M/s. Rallis India Ltd., Bombay, Maharashtra; (8) M/s. Indo Marine Agencies, (Karala) P. Ltd., Cochin, Kerala; (9) M/s. Poyilakada Fisheries, Quilon, Kerala; (10) M/s. Ravi Fisheries P. Ltd., Bombay, Maharashtra; (11) M/s. Union Carbide India Ltd., Visakhapatnam, Andhra Pradesh; (12) M/s. Devi Marine Food Exports, Madras, Tamilnadu; (13) M/s. George Maijo (Cuddalore), Cuddalore, Tamilnadu; (14) M/s. King Fisheries, Quilon, Kerala; (15) M/s. Puri Marine Products, Puri, Orissa; (16) M/s. Overseas Marine Products, Madras, Tamilnadu; (17) M/s. Castlerock Seafoods P. Ltd., Bombay, Maharashtra; (18) M/s. Castlerock Fisheries P. Ltd., Bombay, Maharashtra; (19) M/s. Sea Pearl Industries, Chandiroor, Kerala; (20) M/s. Bharath Seafoods, Chandiroor, Kerala.

Chartered Vessels Cheering Operations

CAPT. N. VENKATESWARLU

The bull trawlers chartered by M/s Tropical Fishing Company have completed their maiden voyages of 80 days in Indian waters. Their maiden voyages started from Visakhapatnam on 15th May 1982 and terminated at Marmugoa harbour on 4th August 1982. Each pair netted nearly 325 tons of fish. They sailed to Singapore on 6th August 1982 for unloading and marketing of the catches.

The bull trawlers initially operated off Paradip in deeper waters, during which they suffered

extensive damages to the nets. Consequently they shifted operations to the deeper waters close to Indo-Bungla Desh border, but within Indian waters and conducted fishing there for 40 days continuously. The average catches were of the order of 2 to 3 tons per day for each unit in each haul, consisting mainly of scianids and ribbon fish. Dragging was done for three hours at a time. On the 22nd day of operation, the Indian Coast Guard intercepted the vessels and enquired about the welfare of the Indian crew working on board.

Following the above mentioned operations, the trawlers switched on their activities to the West Coast, off Quilon. The operations were encouraging for 5 days during which they got 5 tons of squids per day of operation. The catches however soon dwindled, and the trawlers left for Bombay coast. Here they fished for 50 days with impressive results. The catches consisted predominantly of quality varieties and the average landings per unit were 6 to 7 tons per day.

From Bombay coast, the trawlers later moved over to Goa coast, where they got 5 to 6 tons of squids per day of fishing per unit. The operations were conducted along Goa coast for 8 days. In spite of good catches, the vessels were called back to port by the charterers and they entered Marmugoa harbour, on 4th August 1982.

It is understood that the Marmugoa port is providing far better facilities than those available at Visakhapatnam. While it is stated that at Visakhapatnam it takes 12 to 15 days to fulfil the port and customs formalities and for bunkering, at Marmugoa port it is taking only six days. Apart from this, the captains of the trawlers find that the west coast grounds are of greater potential for fishing than the east coast. Another point in favour of operations on lower west coast is that Singapore, where the catches are unloaded, is nearer. The Taiwanese crew feel that the quality and quantity of fish caught is quite encouraging.

There are 19 crew members on each vessel of which 2 members are Indian crew. The salaries paid to the Indian crew is considerably on the lower side compared with the foreign crew. The approximate pay structure per month is stated to be as follows:

- 1) Captain—Rs. 8,000 + incentives;

- 2) Engineer—Rs. 7,000 + incentives;
- 3) Operator/Purser—Rs. 5,000 + incentives;
- 4) Oil Man (Senior)—Rs. 4,000;
- 5) Oil Man (Junior)—Rs. 3,000;
- 6) Cook—Rs. 4,000;
- 7) Net man—Rs. 3,000; and
- 8) Indian deck-hands—Rs. 600.

While these bull trawlers conduct continuous fishing, this is limited to a duration of three days at a stretch after which an 8-hour rest is given. Even in cyclonic weather, the trawlers continue fishing. While the foreign crew are given incentives on the catch, the Indian crew are given only their salaries.

It is stated that the working conditions on the trawlers are fairly satisfactory. However, the Indian crew members have difficulties in regard to consuming Taiwanese food, which is given to them.

Answer fish

Contd. from page 42

Fishing. USA, Spain, France, USSR and Philippines are some of these countries. They may be able to give their vessels on bare-boat charter but practically none in India can take the risk of getting tuna vessels on bare boat terms. The owners would demand advance payment which it is very difficult to comply with. Operational aspects will present a serious problem under bare boat terms.

In this situation only government corporations can step into the field boldly, by negotiating with foreign firms and securing best fishing industry in the country on an enduring basis. But the utmost possible terms for introducing tuna

vessels on charter. Of course, the possibility of private sector companies to secure charter offers, not exactly in consonance with the guidelines issued by the government is always there.

No doubt government wants to encourage charters of tuna vessels, with a view to establishing tuna

it can do now is to exhort the industry by word and gesture. The government's guide lines for charters are mostly designed for chartering trawlers and gill netters. For tuna vessels, the charter conditions require modifications. Government would perhaps be able to consider them only when some proposals reach them.

MARINE PRODUCTS EXPORTS PICK UP

During April to June 1982, Marine Products Exports picked up considerably in terms of value (32.06%) and marginally in terms of quantity (3.41%), compared to the performance during the same period in 1981. The following are the particulars:

APRIL-JUNE 1982 EXPORT PERFORMANCE

EXPORTS	1982	1981	INCREASE (+)
Quantity (Tonnes)	16719	16167	+ 552 (3.41%)
Value (Rs. Crores)	76.58	57.99	+ 18.59 (32.06%)
Average Unit Value (Rs/kg)	45.80	35.87	

In June 1982 the pick-up was impressive compared to June 1981 performance. There was an increase in value by 67.09% and in terms of quantity by 28.69%. The particulars are as follows:

JUNE 1982 EXPORTS:

EXPORTS	1982	1981	INCREASE (+)
Quantity (Tonnes)	5805	4511	+ 1294 (28.69%)
Value (Rs. Crores)	27.57	16.50	+ 11.07 (67.09%)
Average Unit Value (Rs/kg.)	47.49	36.58	

The performance during January to June 1982 is as follows:

JANUARY-JUNE 1982 PERFORMANCE:

EXPORTS	1982	1981	INCREASE (+)/ DECREASE (-)
Quantity (Tonnes)	34359	39075	- 4656 (11.92%)
Value (Rs. Crores)	148.47	130.58	+ 17.89 (13.70%)
Average Unit Value (Rs/kg.)	43.21	33.42	

Here is an estimation of what stars say about fortunes of fishery industrialists, managers and operators for the period of August 15 to September 14, 1982. Believe it or not.

ARIES (March 21 to Apr. 20):

You are likely to see the finalisation of a joint project around 20 August. Lively developments will be there in your job. You will achieve productive results. Avoid tension around 24 August. Travel is indicated around 27 August. While an encouraging trend in your fortunes is indicated towards the end of August, it is quite likely that you will face financial squeeze in early September. You are likely to quarrel with a colleague of yours in the second week of September. Try to avoid this and also take care of your health. Fishing results are likely to be good around 29 August.

TAURUS (Apr. 21 to May 21):

While you may receive disappointing news, things will not be as bad as you imagine. There will be encouraging developments around 19 August. Your expenses will however increase. Try to finalise important deals around 27 August. Towards the end of August you will make considerable progress in your career. Your success will depend largely on the promptness with which you take decisions. Be careful in the second week of September and do not take any risks. Remember that a bird in hand is worth two in the bush. Consolidate your position. Fishing is likely to be good around 19 August.

GEMINI (May 22 to June 21):

You are likely to take greater interest in domestic affairs rather than your professional matters. There will be some financial disputes out of which you will somehow manage to come out. In the first week of September you may develop an irritable mood and you would prefer seclusion around 12 September. There can be some financial luck thereafter. Fishing results are not likely to be as per expectations.

CANCER (June 22 to July 23):

You will attract lot of attention from those who matter. You may take up a new job. Financial position will be satisfactory, although you are likely to be reckless in spending. Be on the look out for a money making scheme. You are likely to succeed. Work will suffer in the last week of August. There may be serious tensions in the first half of September. You have to control this tendency. Around 14 September you will be in a mood to take risks for financial gains and indications are that you may succeed. Around 10 September there is a possibility of good fishing.

LEO (July 24 to Aug. 23):

You will have the satisfaction of having completed a good piece of work satisfactorily. It looks as if you are going to make lot of money, but the final result may be disappointing. You may land up in disputes concerning money matters. You will be extremely busy in September. Neither lend nor borrow money during the period. Nevertheless you are likely to spend money on others which

will one day result in some help to you. There can be good fishing around September.

VIRGO (Aug. 24 to Sept. 23):

You will pick up new friendships. An influential person will be of considerable help to you. Fortunate trends are foreseen from 23 August. Those single may get married. In early September you are likely to perceive that you are reaching your goals. You will put forth your ideas confidently before influential persons and this will help you immensely. There can be moderate to good fishing in the first fortnight of September.

LIBRA (Sept. 24 to Oct. 23):

You will be enthusiastically active for most part of August. There will be considerable improvement in your social status. Beware of disputes with your friends over monetary matters. Difficulties may arise in regard to partnership matters. Your efforts at promoting your activities will be crowned with success. Fishing is likely to be above average around 30 August.

SCORPIO (Oct. 24 to Nov. 22):

You are likely to take vacation in mid August. New career opportunities may develop around 30 August. There can be good profits made around 21 August. However, beware of exaggerated money making schemes that may be suggested to you. Your social popularity may increase. Incomes may be good in the last part of August. You are likely to meet influential persons who will further your career opportunities. You have however to be careful not to antagonise your present authorities. In the second week of September there can be unexpected expenditure. 14 September appears to be a very

lucky day. Fishing is likely to be good in the second week of September.

SAGITTARIUS (Nov. 23 to Dec. 21) :

Be imaginative and follow up promising leads which may result in financial benefits. You will come across troublesome people in the third week of August. Do your best to avoid them. Important business meetings may take place towards the end of August. An important money earning idea will hit you in the last week of August. Make the best out of it. Keep your emotions in control. Otherwise your business affairs may get out of control, particularly in the first week of September. There can be good fishing around 7 September.

CAPRICORN (Dec. 22 to Jan. 20) :

A money making project is in the making and you will derive substantial benefits from this in the coming months. There will be an improvement in your status, and you will receive greater recognition, may be in the third or fourth week of August. You may however have to face an upsetting situation, possibly in financial matters and there can also be a break in friendship. You would concentrate on clearing up arrears of work towards end of August. Avoid self-pity and become confident, when you get the feeling that you could have done things in a different manner. Good fishing is possible around 28 August.

AQUARIUS (Jan. 21 to Feb. 19) :

If you are thinking of leaving your job to set up an enterprise of your own or securing a better position, there seems to be opportunities lurking. You have to locate and make the best use of them. Backing for a business venture may come around 20 August. Financial matters relating to partnerships will be bright. However,



money dealings with friends will create difficulties. You will make a very intelligent decision around 27 August. Most of the time in the first week of September will be wasted. Work on a sound fisheries project. You seem to have the luck to implement it successfully. Good fishing is indicated in the first week of September.

PISCES (Feb. 20 to Mar. 20) :

You will face realities concerning financial matters affecting your future. You will have a confrontation on financial matters with your partners. You may however gain favours in job advancements. It is possible that someone on whom you depend may disappoint you during the third week of August. It looks as if you have to make compromises to stabilise your career position. Your life gets entwined more and more with other people. It is desirable to avoid direct confrontation with those who matter, particularly in the second week of September. You will, however, be tactful in your dealings and it will save you from awkward situations. Good fishing is indicated around 5 September.

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Answers to Quiz :

- 1) b, 2) c, 3) b, 4) b, 5) a, 6) b,
- 7) b, 8) a, 9) a, 10) b, 11) c,
- 12) a, 13) a, 14) c, 15) a.

ANSWER :

Fisherman's Jumble :

TURTLE, TROUT, PUFFER,
CONGER EEL

Answer : PEN CULTURE

Word Spin :

TANK, BANK, BAND, BIND,
BIRD

New Peak in Marine Products Exports

The value of marine products exports from India in 1981-82 went up by 22%, compared to 1980-81. While the export value was Rs. 234.84 crores in 1980-81, during 1981-82 the value rose to a new height of Rs. 286.01 crores.

This spurt was not however on account of any increase in the quantity exported. In fact, the exports fell by 7% during 81-82, the quantity exported being 70,105 tonnes. The increase in realisation was due to improved export price and weakening of rupee, bringing more rupees per dollar. The fall in quantity of exports was attributable to fall in catches and stagnation in the growth of Indian fishing fleet.

The average unit value realised in 1981-82 was Rs. 40,800 per tonne. This was the highest realisation so far. Shrimps, lobster tails and cuttle fish registered an increase in exports, while products such as frozen squids, canned shrimp, dried shrimp and dried fish etc. received a set back in exports. Although in respect of fresh/frozen fish, shark fins and fish maws there was a fall in quantity, there were increased returns.

Frozen shrimp covered the lion's share of our exports (87%). It would be of interest to note that, for the first time, the quantity of shrimp exported crossed the stagnant level of 51,000 tonnes in the previous years. The new level reached was over 70,000 tonnes. Significant progress was made during 1981-82 in regaining our market in USA and Australia. There was also a strengthening of our position in West European

markets. UAE had also now become an important new market which received a supply of 459 tonnes.

Exports to Japan were maintained, by and large, at 1980-81 level and India continued to be the main supplier of frozen shrimp to Japan, providing that country with about one fourth of their total shrimp imports. For the first time India became the fourth largest supplier of marine products to Japan, pushing Indonesia and China to fifth and sixth positions respectively. In the US market, India gained as the third largest exporter transferring Panama to the fourth position. England continued to be India's third biggest market. Exports to this country had increased from Rs. 6.89 crores to Rs. 9.74 crores in 1981-82. While exports of head-on shrimp to West Europe were stepped up, shipments to USA increased by 15% during the year.

Cochin continued to be the major port of shipment (45%) followed by Bombay and Madras respectively. There was a decline in exports from the east-coast ports from 14,676 tonnes in 1980-81 to 13,916 tonnes in 1981-82. The West-coast ports had improved their performance. From 36,682 tonnes exported in 1980-81, the shipments went up to 38,264 tonnes in 1981-82.

Export value of froglegs moved beyond Rs. 10 crores, for the first time in 1981-82, reaching the level of Rs. 11.20 crores (4065 tonnes). India continued to be the world's foremost producer and supplier of frog legs. There was an increase

both in terms of quantity and value in regard to lobster tail exports. Exports of lobster tails to Japan more than doubled, while shipments to other major markets declined. Frozen squid exports sustained a fall to a level of 1387 tonnes in 1981-82 valued at Rs. 1.45 crores from 1.75 tonne valued at Rs. 1.97 crores in 1980-81.

This was stated to be because of poor landings. In regard to frozen cuttle fish, our exports to Japan increased three fold from 236 tonnes valued at Rs. 53.02 lakhs in 1980-81 to 757 tonnes valued at Rs. 2.40 crores in 1981-82.

Exports of canned shrimp and dried fish suffered a steep decline. While there was also a similar fall in regard to the quantity of fresh/frozen fish exported, in terms of value the exports registered a significant rise. Kuwait continued to be the principal market. Exports to UAE, Japan and Saudi Arabia improved significantly. While exports of shark fins increased, fish maws suffered a decline both in terms of quantity and value.

Regarding disposition, 57% of the exports were to Japan in terms of quantity and about 71% in terms of value. Our exports to USA had also registered an increase of 15% in terms of quantity and 12% in terms of value. West European countries accounted for 13% of our exports in terms of quantity and 10% in terms of value.

INTRODUCING PERSONALITIES

Contd. from page 35

Mainly, the migration of Hilsa ilisha to various extremities, even upto Tipaimukh has been reported. There is a good potential of hilsa fishery in this region, according to my findings. The zoo-geography and ecomorphology of fish fauna of this region is still under intensive observations by me. My investigations would soon be extended to river Brahmaputra."

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September 1982

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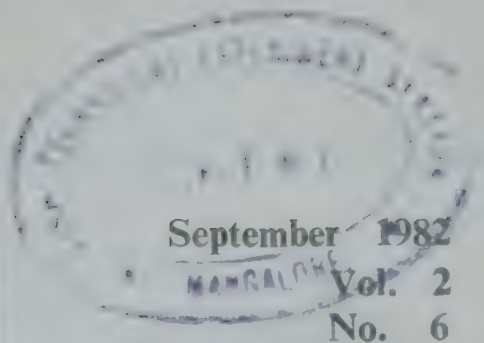
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Letters to the Editor

Dear Sir,

Charters and joint ventures in the field of marine fisheries are, at best, short term measures to fill a vacuum. Long term measures to establish the industry on a sound footing have also to be initiated simultaneously. In this connection, the sapient observation of Mr. Jakhanwal at the International Conference on deep sea fishing held in Delhi in June 1982 that the transition from traditional to modern technology had to be brought about without pangs or pains and that necessary linkages had to be developed to bring about this transition is highly relevant.

Catching fisherboys from traditional fishing families while they are young and instilling in them the ways of upgraded fishing on a long term basis is the best way to build a new generation of fishermen who would become the agents to bring about the transformation from the traditional to the modern. Institutes have to be set up for the purpose. Fisherboys, about nine years in age, can be recruited. Besides imparting education in languages and other subjects, they can be given intensive coaching both in theory and practice of modern fishing methods for seven or eight years, (higher secondary course in fisheries) by which time impressions of modern fishing methods would have formed on their minds. Later, they can receive regular training on commercial fishing vessels to put in the requisite sea time to appear for MMD exams to acquire the relevant tickets. Once they pass the examinations, there should be a system to provide them with fishing vessels.

Long-term measure, on the lines indicated above have to be initiated by the government, if the fishing

industry is to be established on a firm footing in times to come.

N. Venkateswarlu (Capt.)
Visakhapatnam.

* * *

Dear Sir,

Thinking at all levels, as noticed from the deliberations at the seminar held in Ahmedabad in April 1982 and at the International Conference on deep sea fishing held in Delhi in June 1982 seem to be oriented towards charters and joint ventures. The belief seems to be that from the phase of charters and joint ventures, the nation would move towards a fully national-oriented industry.

We have seen the result of both charters and joint ventures in the past. None of the charters permitted so far by the government has led to the establishment of an indigenous industry. Like-wise, the joint venture by Kelvinator floundered. In the same way as these are short-term measures, for the entrepreneurs also these become activities with short-term objectives. Only Tatas showed long-term interest to convert their charter activity into an indigenous industry, but government never permitted them.

The only feasible solution to develop our deep sea fishing activities is for the government to set up a major organisation to introduce deep sea fishing vessels, either by charters or indigenous construction or through joint ventures and to deploy them for operation through private sector enterprises, subject to suitable terms and conditions.

J. V. R. Gopal
Bombay.

Dear Sir,

It is sheer hypocrisy to say that the "South Indians formed the nucleus of fisheries development in Gujarat" (Your article on page 43 of June '82 issue, "Gujarat Fisheries Co-operative Association Saga.....").

The development of Fisheries in Ex-State of Saurashtra and now in Gujarat has been due to active support and sincere labour made by locals like Dr. Gokhle S.V., Lacumb N.C., Dholakia D.L., Mankar I.B. etc. The foundations of GFCCA have been made strong by its First General Manager, Shri N. C. Lacumb who toiled very hard in those early days of development, when public and Governmental apathy against fisheries development was strong. The fruits of those efforts by a strong GFCCA are now being reaped by the present administrators.

V. D. G. Chandra
Veraval.

* * *

Dear Sir,

Dr. Kanazawa's exhortation (FISHING CHIMES, April 1982) that fish nutritional studies should be rapidly expanded in India is timely.

As you know, some of the work in my Lab relates to environmental relations of fish. Dr. Shantha got her Ph.D for work relating to metabolic reorganisations in *Anaba testudeni* under varied dietary requirements. I am continuing similar work in other doctoral programmes involving dietary manipulations, novel diets from junk etc. One candidate with CSIR fellowship is working on fresh water crabs. A parallel work on fish is also afoot.

J. V. Ramana Rao (Dr.)
Professor of Zoology
Osmania University
Hyderabad.

Diversification has Diverse Problems

Almost the entire fishing effort in the mechanised sector in the country is directed at shrimping through trawling. The government as well as the industry are anxious to diversify the efforts to cover other fishing methods. Chief among these that are spoken are tuna purse-seining, tuna long-lining, and squid jigging, gill netting, lobster fishing, tuna pole and line fishing, and trawling, single vessel stern trawling with larger vessels etc.

In the recent past, bull trawlers and larger stern trawlers have been reduced through charter arrangements. Other methods through charters have not yet been reduced.

From the point of view of sheer economics, any foreign fishing company would prefer to provide trawlers on charter. Demersal and pelagic fish are abundant in our waters at some location or the other, depending on the season. With their endurance, the trawlers can move from place to place searching for stocks and exploiting them. No other type of fishing can be as remunerative as trawling, be it demersal or pelagic.

Gill-netters are the next potential bet. Surface or bottom-set gill netting with purse nets are likely to yield

good results; Besides this, gill-netting operations consume less of fuel. One company, M/s Nava Bharat Ferro-Alloys, Visakhapatnam, applied to the government for permission to charter gill-netters over a year back, but so far there has been no clearance. Once the results of gill netting under this charter are found to be satisfactory, others are likely to enter this line. One point to be noted here is that surface and bottom-set gill nets catch the same stocks as with mid-water and bottom trawls respectively. The rate of capture will however be less. While the trawls sweep the ground in the case of gill nets, fish, in their movements, get entangled in the nets, although there will be slow drifting of the nets.

Regarding squids and cuttle fish, the known stocks in our waters are well within our territorial waters. Oceanic stocks are reported but there is no tangible proof of their availability. So much so, no foreign fishing company can take the risk of providing their jiggers on charter, under the present terms and conditions of our government.

So far as tuna fishing is concerned, we know that tuna is an open sea fish. There are extensive tuna areas outside our exclusive economic zone.

Foreign tuna vessels can tap those resources. When such a scope is there and also when there are chances of fishing for tuna even in the farther areas of our EEZ, without fear of detection, one can understand that no foreign fishing company would like to subject itself to the various terms and conditions of charter imposed by our government. If there are special incentives, foreign fishing companies may come forward to provide Indian fishing companies with tuna vessels on charter.

Tuna purse seining is an expensive operation, involving a high order of coordination of activities. Apart from the purse-seiner and the skiff, the foreign fishing company has to bring in a scout boat and a few light boats. If the operations are combined with the raft system (covering a ground with anchored rafts to attract tuna), the expense on rafts becomes additional.

With all these investments, running into several million US dollars, the foreign companies first want to be reasonably certain about the grounds, about the type of tuna available and their sizes. In our waters, we get mostly skipjack which brings a far lesser price compared to varieties such as Albacore, bluefin and yellowfin. Further, the foreign fishing companies have a belief that the average size of skipjack in our waters is on the lower side. In regard to tuna long-liners, it is stated that all major tuna fishing nations are going slow in tuna long-lining, as the operations have become unremunerative. Countries like Taiwan may like to give their long-liners on charter but on their own conditions.

When would a foreign fishing company be inclined to provide

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their tuna vessels on time-charter with their crew to other national enterprises? That will be when fishing in their present grounds is either uneconomical owing to depletion in stocks, or they are unable to exploit known resources in the EEZ's of other nations when the fishing area is within the EEZ of that country. They also have the apprehension that they will have competition from vessels of other nations while fishing in the permitted areas, leading to confrontation. They must also be confident that the operations in the EEZ waters of other countries will be economically viable.

Fishing Companies in U.S.A., Spain, France and Japan, which are major tuna fishing nations, do not seem to have any active interest in providing their tuna vessels on charter to Indian fishing companies. Taiwan and Korea have few long liners, and practically none, so far as tuna purse seiners are concerned. Philippines has a sizeable fleet of tuna purse seiners. It appears that there has been

an excessive fishing effort in Philippine waters. Consequently a few of the Philippine Companies started deploying their vessels in Indonesian and other waters. They may like to provide tuna purse seiners on charter to Indian fishing companies, but only on their conditions. Thus Philippines seems to be the only source to be tried either for chartering tuna purse seiners or for entering into joint ventures, based on tuna. It is however doubtful whether the Philippine companies would agree to the standard Indian conditions for chartering of fishing vessels.

The main line of diversification of sea fishing in Indian waters undoubtedly concerns tuna. Considering the bleak picture in getting tuna vessels on charter on the basis of sharing the gross proceeds at 85% to the owners and 15% to the charterers, what seems necessary immediately is to open a commercial wing at the Integrated Fisheries Project, Cochin. Through this wing several purse-seiners/long liners of different capacities can

be chartered and operated. Once the results are encouraging, the private sector will come forward to introduce such vessels. The foreign fishing companies would also develop the confidence to provide such vessels on charter, under such terms and conditions as accepted by both the sides and approved by the government of India. The same approach can be adopted in respect of squid jiggers, gill netters and lobster-potters.

In respect of bull trawlers and stern trawlers, the results from these charter programmes are likely to be encouraging. In all such cases, government should evolve a system under which quick clearance regarding cost of vessels and in respect of loans from SDFC can be given. If these are delayed the chances are that the owners may divert their vessels elsewhere and withdraw their sale offer. In such an event, the Indian fleet will stagnate. It is therefore of utmost importance that the applications for loans for the acquisition of such fishing vessels should be cleared by SDFC expeditiously.

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INTERVIEWS

Fisheries Instrumentation Pivotal for Higher Harvests, Says Sivadas

Born on October 7th, 1938 T. K. Sivadas obtained his M.Sc. degree in Physics with Electronics as optional subject from the University of Kerala and later had his Post-Graduate Diploma in marine instrumentation from University of Trondheim, Norway. Starting his career as a lecturer, he joined the Mech. Engineering division of CIFT in 1963. In the course of his work, he became interested in the instrumentation problems. In 1974 he joined NIO where he acquired an indepth knowledge of the various problems of instrumentation, especially those relating to oceanography and fisheries. He is now the head of the instrumentation division at CIFT. While working in Norway under deputation, he could absorb a wider spectrum of the subject. He received the Republic Day Award in 1971 for developing trawl depth meter and later in 1976 he was honoured with the Independence Day Award for the innovation of warp load meter for use in fishing trawlers. Presently working for his Ph.D., Sivadas advocates an integrated approach to tackle the instrumentation problems of marine fisheries field and marine environment with the application of indigenous technology. He is now engaged in the preparation of a programme regarding this for the consideration of the concerned authorities.

K. Vijayakumaran interviewed Sivadas recently. The following were the questions and answers. Sivadas says that the views expressed are his own and not that of the institute where works now.

Q. Would you please briefly explain the importance of electronic instruments in the exploitation of marine fishes?

A. Marine fishery exploitation in an effective manner calls for application of knowledge and skills. Firm knowledge of grounds and

movements of fish can come only through electronic instruments. Fisheries instrumentation is pivotal for higher fishery harvests. A major programme has therefore to be launched to produce and popularise electronic gadgets to aid and ensure effective fishing results. There are various stages where scientific and systematic conclusions are to be drawn rather than arbitrary ones. Unlike any other field of science, here it is not always possible to arrive at conclusions based on mathematical estimations. Mathematical calculations are practicable only when sufficiently reliable data are available. There are a number of institutions in our country having hundreds of scientists engaged in various programmes financed by Central Government, State Governments, Universities and international organizations. Their programmes being indirectly or directly connected with various aspects of fisheries like hydrography, ecology, population dynamics, etc. the success of these institutions and their programmes depend on quick and timely availability of reliable and accurate data on relevant aspects from the actual field. But it is very unfortunate that the efforts to equip our

laboratories with the required facilities and implement the programmes are very poor. The initiation of the programme and staffing thereafter are not followed with provision of facilities. Most of the money is spent just on salaries. In fact such programmes and projects will have to be planned and revised according to contemporary developments in the related instrumentation.

Q. Would you please give a brief account of your contributions in fishery electronics?

A. The electronic instruments developed by me are meant for making the research, investigational and commercial fishing efforts more scientific and systematic. Fishery technology has got various aspects and so my contributions are spread over a wide range. There are also a few cases of direct application for commercial fisheries. The contributions can be generally classified into the following group:

Instruments for fishery hydrographic investigation:

The data needed for these investigations are marine environmental parameters such as temperature, salinity, current, speed and direction, oxygen content etc. at different depths in the sea. Physical parameters at and above the surface like tide, waves, air temperature, humidity, wind, wind velocity, barometric pressure, etc. are also of prime importance to Oceanography in general and atmospheric studies pertaining to meteorology. I could contribute to this large field in a number of ways by developing necessary instruments. These instruments are designed to suit our tropical marine environment and can find application in other fields like oil prospecting, navigation, port and harbour activities, coastal engineering etc.

Instruments for testing and standardization of fishing craft and gear:

The present development of fishing craft and gear in India is mostly based on arbitrary estimation rather than scientific conclusions. Fishing craft and gear, their design, performance, etc. are purely engineering problems and have to be dealt with accordingly. As far as fishing craft is concerned there has to be proper matching between its capacity and load. Various parameters like bollard pull test, speed of motion, load of fishing gear, the engine

are to be decided for optimum results based on engineering calculations. A set of wire telemetering instruments have been developed successfully for remote operation and collection of the various operational data from under-water trawl systems.

Instruments for commercial fishing operations:

Instruments usually make the operations more and more sophisticated and complicated and hence their contributions, in general, are limited to mostly larger fishing operations only. Some of



MR. T. K. SIVADAS

RPM etc. are the factors to be monitored for deciding the performance of the boat. As far as fishing gear is concerned, behaviour of fishes is the deciding factor for the design of any gear. Apart from this, aspects like horizontal and vertical opening, speed of towing, stability of otterboards, mesh distortion, position of gear, warp load, distribution of load to the different parts of the trawl system, catch accumulated in the net, the water flow characteristics inside and around the net, etc.

the equipment which could be used for regular fishing operations are:

Warp Load Meter:

The warp load meter monitors the load of the trawl net in the wheel house. Since load is related to behaviour of the under-water system, the defects, damages or any abnormalities of the net such as broken legs, torn-off cod end, fouled net, inadequacy in the wire ropes paid out, entangled net etc. can be detected in time and the

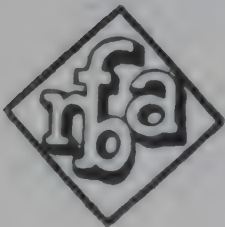
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costly net and time can be saved by proper corrective action. Further, the information also helps to decide the proper matching between gear and the craft. CIFT has developed and commercialised 2 types of warp load meters namely portable warp load meter (for operation in small boats) and ship-installed warp load meter (for permanent installation in larger boats). The meter in the wheel house indicates the damages as well as makes an alarm at times of emergencies for the quick attention of the skipper.



Speed and distance log:

The speed and distance log of CIFT indicates the speed of the boat and the total distance travelled. These meters can be operated from small as well as large boats and they are quite inexpensive.

The trawl-depth meter helps to control the trawl-net to the depth where fishes are located (in fish trawler) during mid water trawling and thus making this more practicable.

Instruments for fish processing factories:

The Institute has developed instruments needed for quality control and automation in fish processing plants and factories.

The brine concentration meter indicates the brine concentration of the blanching tank continuously and very accurately, thereby eliminating the manual efforts and inaccurate estimations. The 'freezer temperature monitor and alarm' indicates the temperature of the cold storages at different positions by a meter at remote places along with alarms indicating the deviation of temperature from the pre-set levels. The electronic moisture meter indicates the moisture

content in dried food products. This instrument is found to be more useful and accurate for other substances namely wood, food grains, potato, honey etc. where the specimens are more uniform.

Electronic instruments for fish behaviour studies:

There are quite some studies going on correlating the behaviour of marine animals especially fishes in relation to the various simulated marine environments, such as effect due to temperature and salinity changes, feeding habits, limits of audibility, visibility, etc. These studies, though primarily done on academic interests, will finally lead to evolving a better and more practicable fishery forecasting. These studies in the laboratories will be more accurate, easy and scientific if there is some automatic method for recording and estimating the response of the fishes to the environments. CIFT has developed fish activity recorder which records and integrates the response (activity) of fishes in an experimental fish tank so that the data can be collected conveniently. The barnacle cirri beatings counter is another equipment which counts the cirri beatings of barnacles in a test panel without disturbing the

animal. The oyster shell counter counts the shell movements.

Electronic equipment for watch keeping in fishing boats:

We have developed instruments for routine watch keeping in fishing vessels. The bilge water alarm makes alarm when the bilge water level approaches a dangerous level. The marine temperature alarm indicates the non-alignment between the engine and the stern tube. This is particularly useful for wooden vessels, which in due course loses proper alignment and causes breakage of shaft. The device also indicates the exhaust temperature, engine head temperature and cooling water temperature.

Instrumentation service for other organisations:

The instrumentation works carried out successfully by us has given us the capability of taking consultancy works for other organizations in marine and aquatic fields for meeting their specific problems.

A large coastal oceanographic Data Acquisition System (CODAS) has been developed for installation in shallow waters for automatic acquisition of marine environmental

data from the sea in a 16 channel telemetry link. The marine environmental data namely, water current, tide, waves, wave direction, salinity, water temperature, air temperature, humidity, barometric pressure, wind, wind direction, etc. will be continuously acquired. The system, fabricated successfully, is in the process of installation.

Q. The modern electronic equipments like Echosounder and Sonar are primarily useful to the fishing industry as fish finding equipments. Could you explain how the electronic equipments for commercial fishing developed by your Institute can be effectively used along with the above instruments so as to increase the utilization of resources? To what extent the application of these instruments will enhance marine production?

A. Some of the equipment developed in CIFT can be used along with the conventional acoustic instruments for better efficiency in fishing operations. In mid-water trawling operations, the fishes are located anywhere in between the surface and the bottom unlike the bottom trawling. Once these fish shoals are detected in the conventional fish finding equipment, the trawl net has to be controlled and brought to that depth level to intercept them. But our information about the position of the net is not sufficiently adequate and the controlling is not effective. The trawl depth meter of CIFT gives the exact position of the trawl net. This information along with that of the position of the fish shoal helps the skipper to control the net and make it to intercept the fish shoal. Either altering the warp length by controlling the winch or altering the speed of the vessel. The operation of trawl-depth meter is easier compared to its foreign equivalents namely net sonde, net probe, etc. This has got

increased demand in the present context of exclusive economic zone where mid-water trawling is more important and the larger trawlers can afford to have such sophisticated methods. The speed log can be utilised in purse-seine operations along with sonar equipment which displays the pelagic fish shoals around the boat. The speed log helps us to encircle the fast moving shoal, as the meter indicates the speed of motion of the boat and the total distance travelled.

Q. Have you ever thought of the possibility of developing a simple and economic version of the modern fish finding equipments like sonar and echosounder in the background that these equipments are costly, sophisticated and require technically qualified people to operate them?

A. The acoustic instrumentation as applied to fish detection and resources estimations have developed very much and the development of inexpensive and simple equipment has been the concern of every manufacturer. But the developments in electronics have made even much sophisticated equipment to be accommodative in smaller vessels also, though it may be still something slightly higher to the standards of our traditional fishermen. Here there is a need to create a consciousness about electronic instrumentation among the fishermen. The Government can import suitable equipment and distribute them among the users on subsidy basis.

CIFT has initiated a small project on the development of a very expensive type of echosounder primarily for depth measurement for the uses of traditional fishermen. We make this inexpensive by avoiding the paper chart display.

Q. How far are the electronic equipments for testing and standardisation of fishing gear helpful to develop efficient gear designs suitable for our country?

A. These instruments have been used only in a smaller way so far and it has not yet reached up to the level of making any national standards. We are preparing a large programme combining the facilities and vessels in all important agencies in the country. There is considerable delay in implementing this standardisation, mostly because the approach itself is something new to fisheries enterprises and the fisheries policy makers in the country. Any way we hope something will turn up soon after the new-co-ordination efforts.

Q. Could you tell me more about the instruments for behaviour studies of marine animals with respect to their application?

A. The instruments for fish behaviour studies as mentioned earlier primarily help to make academic studies on the behaviour of marine animals in response to the simulated environments. These data in correlation will be useful for making fishery forecasting at a later stage. Several advanced countries have programmes for effective fishery forecasting. The basic data they are depending on are the current fishery hydrographic data, the catch data, and the data pertaining to the behaviour of fishes. So these data from laboratory studies on the behaviour of fishes will be useful in a larger way for fishery forecasting when such a programme is implemented.

Q. Will you please give a brief idea on the functions of electronic equipments for fish processing factories?

A. The freezer temperature monitor and alarm is useful for

remote measurements as compared to the conventional types. It further helps to make permanent record of the temperature variations, thus maintaining a history about the performance of the plant. The brine concentration meter helps to make better quality of the concentration without any human effort. In the absence of this instrument, the concentration measurement is very inaccurate and difficult, and hence plant people seldom care for it.

The moisture meter is not a very effective method for fisheries, because the non-uniform shapes of fishes and the unknown quantities of salt make much problems.

Q. Now-a-days we read and hear a lot about modern navigational equipments like DECCA, RADAR, LORAN, SATNAV, etc. How far these equipments be useful in our country?

A. The outbreak of navigational aids in the foreign countries has little impact on Indian fishing industry. Many of the mechanised vessels do not go beyond 20 fathoms and so they are very near to the land. But radio communication aids are being used in many vessels to a limited extent. Only the larger vessels built in India as well as bought from abroad are having the sophisticated instruments like Radar, Decca, Loran, etc. The importance of the navigational aids is much more in the context of exploiting the resources of exclusive economic zones. With the modern satellite navigation aids the position-fixing at sea becomes quite easy. A few more satellites will be needed for efficiency of the systems and a co-ordination between various countries and agencies will be necessary. Some of the sophisticated navigational aids are manufactured by Bharat Electronics. In general, their contribution to this branch is

very less and it will take a long time to perfect a technology which will lead to economic production of these equipments in our country. But if manufactured in India the service needs for repair and maintenance also will naturally increase.

Q. What is the present state of utilization of electronic equipments in our country? To what extent the modern fish finding equipments are being utilised in the mechanised vessels of our country, and what is the state of utilisation of the instruments developed by your Institute?

A. The growth of electronics in the last one or two decades has surpassed any other equivalent field. Our achievements are also very high. But so far as the manufacture is concerned, I feel, we do not have much to claim, because many technologically less advanced countries have comparatively higher electronics production. The impact of electronics and instrumentation in fisheries in India is comparatively very poor, and I think we should make special efforts to change the situation. As for the equipment developed in CIFT, only recently we started commercialising them and they are gaining in popularity. As far as modern acoustic instruments are concerned they are used only to a limited extent by larger vessels.

Q. What are the factors which hinder the rapid transfer of technology to aid the efficient exploitation of the resources? Is there an efficient extension service to help the technology transfer?

A. There are quite some problems in commercialising the production of marine equipment; M/s Bharat Electronics developed echo sounder more than 15 years ago quite successfully but could not proceed further as the demand did not

come up to their expectation. If this is the fate of the most wanted item in marine field, the case of other equipments is still worse. First of all there has to be an awareness among the users about the advantages of using these equipments for implementing their programmes. Our customers do not have confidence in indigenous products. These are all new products and the users are reluctant to purchase new products made in India.

We have got extension service for our technology transfer. But the nature of extension work available for our present activities is not sufficient for popularising these equipments, because the sphere of service of the present extension workers is much different.

Q. Are there enough industrial concerns to manufacture the instruments in required numbers to meet the current demands and also to create more demand by proper marketing methods?

A. There is an enormous time-lag in the process of commercialisation for various reasons. Since the demand is low at present, and high amount of expertise is needed for each of the items, the manufacturing party is not very happy about the profit margins. They are not able to plan the production properly as the demand is uncertain.

Q. Is the financial state of the entrepreneurs, of both manufacturing industry and fishing industry, sufficiently sound enough to produce and install these instruments?

A. As I explained earlier, most of these items are meant for research and investigational departments and not for the commercial fishermen. The remaining are for comparatively larger boats. Hence

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both the categories should find the instruments useful in implementing the programmes. The manufacturing parties' concern is that the demand is uncertain and the facilities needed for production and quality control are much higher compared to other equivalent items.

Q. What remedial measures can you suggest to tackle the present problems and what are the steps to be followed in order to increase the utilization of electronic equipments?

A. So far as the production is concerned, the problem will be solved once the items become popular. Further the institute will give maximum facilities for quality control and prototype testing. The concerned departments, especially in fisheries circles, are not quite aware of the equipments, because these are all new items. The developments in electronics, especially with the latest integrated data acquisition devices, have rendered many things possible and easy compared to the past. The methodology in investigations, especially in the field programmes, has to be programmed based on the developments in the related instrumentation and data acquisition systems. This can be implemented properly with better contacts with the concerned agencies. Since instrumentation influences the programmes considerably, more education through refresher courses will be useful to the concerned departments.

Q. What is the role the Government could play in this respect—such as aid to the manufacturing industry and assistance to the fishing industry?

A. The success of various investigations and projects very much depends on the instruments which provide the primary data. The concerned persons should know the advantages and limitations of the equipment. Then only the

programmes will be effective. The Governmental authorities must take steps to provide occasional training courses in related methodology and instrumentation systems to the relevant persons.

So far as the commercial fishing industry is concerned, Government should provide subsidy and encourage the fishing industry. In regard to the foreign electronic equipments, Government should import equipment and provide to the industry on subsidy basis. The indigenous manufacturing problems can be solved by providing enough quality control staff from the various research institutions. Like CSIR, ICAR also must give permission to the concerned scientists to leave the institute at his will for helping the industry in production and development of the equipments. More extension workers must be appointed to educate the users and create an awareness of the electronic instrumentation and a consciousness of its advantages. Popularization of indigenous equip-

ments must be the policy of Government and priority must be given to them. The Government also can give some tax benefits etc. for the indigenous items. Along with these steps, establishment of consultancy organisations for providing valuable guidance to the industry must be considered properly.

Letters to the Editor

Dear Sir,

This is regarding the COMMENTS that appeared in FISHING CHIMES of July '82 issue on "TRASH INTO CASH".

During my observation in Thailand, I have come across a number of private fish farmers in that country, making the best use of the marine trash fish using it as fish feed in raising an excellent crop of MAGUR and MURRELS. Private entrepreneurs can take up such projects.

T. S. Satyanarayan
Ahmedabad

FISHERMEN'S JUMBLE

These words are as unsorted as a fish haul. Restore them to the correct order, with each letter to a square. After this, arrive at

the answer by adjusting the letters in the 'fishes', deriving clue from the sketch alongside. Answer on p. 45

NISHIFG

GRITGER

HISF

HENDAMEN

TUAN

ANSWER:

INTERVIEWS

Presenting Information is as Important as Presenting Sea Foods, Says Hannes Nierentz

VIJAY



MR. HANNES NIERENTZ

'Presenting information on import and export aspects of marine products is as important as presentation of sea foods. However the information presented should be useful and at the same acceptable' said Mr. Hannes Nierentz, Marketing Officer of INFOFISH, Malaysia, while speaking on disse-

mination of information among fishery industrial circles. He was recently in India as an invitee at the Small and Medium Sea Food Exporters Convention held at Bhubaneswar.

Fish Marketing and Advisory and Information Project, known as

INFOFISH, was initiated last year by the Food and Agriculture Organisation under directorship of Dr. Wolfgang Krone for the benefit of Asian and Pacific Region countries. It has a membership of 17 countries, latest being Solomon Islands.

Nierentz is in charge of collection of data, assessing it and publishing it in INFOFISH publications.

INFOFISH serves as a clearing centre for sales of marine products by matching "sell" queries from fish exporters in the region against a register of "buy" information from importers through out the world. It backs its service with news letters, air-mailed twice a month; These are—INFOFISH Trade News and INFOFISH Marketing Digest.

FAO has similar service stations in Latin America called 'INFOPESCA', in Africa called 'INFOPERHE' and in Gulf countries called INFOSAMAK.

'INFOFISH intends to computerise all the information collected from all its clearing house operations' Nierentz said.

During one year of service INFOFISH has served about 800 product sales queries. We offer free service to those providing us information and also they will be benefited by us with individual service', Nierentz said. INFOFISH would be available to exporters and importers on paid subscription basis. From January 1983 INFOFISH would be allotting space for advertisements. This is because the funds provided by Norway for this project would come to an end by then and later it has to be run on cost recovery basis. Nierentz is positive that INFOFISH would continue to play its role more vigorously than ever. INFOFISH is also available now

on payment of 245 US dollars to member countries and 295 US dollars to others.

Asked about the feelings expressed at the Convention of Small and Medium Exporters at Bhubaneswar, Mr. Nierentz said that what they spoke had made some sense.

On the role being played by Marine Products Export Development Authority in respect of marine products exports, he said 'They do a very good job. Very active'.

On exports of marine products from India, Nierentz said that since fishing industry anywhere means catching and marketing, it depends mainly on resources. And India has very good potential in this aspect, he said. He was associated with INFOPECA for two years before joining INFOFISH.

An agriculture engineer from the University of Jottingan, West Germany, Hannes Nierentz is married to Gemma and now at the age of 34, he is father of two children and leads a happy married life.

reference to the conditions of existence at Veraval centre in Gujarat, it was treated with the national position in the background. As the authors have pointed out, one cannot be sure at this stage whether the conclusions are applicable to all the coastal states of India. The authors admit that the sample size was too small because of constraints of resources and time and that their conclusions should be treated as tentative. As Mr. Gaikwad says in his foreword, 'the present study is a pilot attempt to understand the main issues and inter-relationship existing in the management of marine fisheries from the catch to final processing and distribution'. The centre for management of agriculture of IIM, it is stated has now undertaken a major study on marine fish marketing to test the insight gained into the various inter-relationships in the present work.

So far as basic aspects are concerned, the study reveals that the share of fisheries in the gross domestic product was 1.97% and the per capita fish availability was 3.84 kg/annum in 1978. The potential marine fishery yield upto a depth of 200 metres is 2.43 million tonnes. The financial outlays on fisheries development increased from Rs. 51.30 million in the first plan to Rs. 4000 million in sixth plan, although the actual expenditures fell short. There were outstanding loans to the extent of 11.20 crores by March 1976 due to commercial Banks from fishing and fishery based companies by end of March 1976. Kerala had start — the maximum number of freezing plants and capacity, followed by Tamilnadu, Karnataka and Maharashtra. Karnataka had the maximum number of Canning plants. Fish meal plants were concentrated in Maharashtra and Tamilnadu. The

REVIEW

Marine Fishing Industry Maladies and Remedies

Indian Marine Fishery field is fast acquiring all the characteristics of an organised industry. Cadres of professional managers are also building rapidly in the country.

While some of these managers are ex-employees in government fisheries establishments, others are marine engineers, skippers and those with management experience in other sectors.

The policy makers in the government and the managers of fishery and fishery-based enterprises have a serious handicap. They have a vague idea of the areas which may be responsible for the present uncertainties in

the industry but there has been no comprehensive study of the subject to pinpoint the maladies and suggest remedies.

A systematic and valiant effort to fill this lacuna has been made by Professors U.K. Srivastava and V.K. Gupta and M. Dharmareddy of the Centre for Management of Agriculture, Indian Institute of Management, Ahmedabad, in their excellent book entitled 'Management of Marine Fishing Industry', published by Oxford & IBH Publishing Company, New Delhi.

Although the study contained in the book was with specific

total freezing, canning and fish meal plant capacities were 1100.61, 249.72 and 194 tonnes per day respectively.

Regarding growth in annual production of marine fish, the rate worked out to around 3.15% between 1957 and 1976. From 1976 to 1978, Kerala contributed the highest per cent share (32.75) followed by Maharashtra (18.32), Tamilnadu (15.50), Gujarat (10.84), Andhra Pradesh (8.71) and Karnataka (8.09). The percentage of high priced species in the total landings were 27.29 from North West coast, 17.38 from South west coast, 15.96 from lower east coast, and 15.15 from upper east coast. Catch per unit effort on a national basis, in 1976, was 4.88 kg. Regarding utilisation of fish, marketing of fresh fish improved from 40.71% in 1955 to 69.43% in 1975. In recent years (between 1963 and 1975) the rate of growth of frozen fish has been around 21% followed by sun dried (19%) canned (10%), and fresh fish (7%). The rate of growth of overall exports of crustaceans had been around 14% by 1978.

The authors say that all efforts were directed at mechanisation and augmentation of infrastructural facilities. The problem of marketing, particularly in internal markets, had not received adequate policy support and attention. Pointing out the lack of orderly marketing, the authors opined that operational support measures, as had been introduced in other countries, were needed in India. The future pay-offs from massive investments in augmenting infrastructural facilities and strengthening production base, would, to a large extent, depend on a systematic set of supplementary operational support measures. In this context, the authors feel, it is necessary to study the working of the industry from

production to final disposal of produce and they have given an expressive system diagram.

The main part of the book concerns itself with the profile of the sample area (Gujarat state with special reference to Veraval) and selected fishermen, details of harvesting and disposal of marine fish operations of the merchants and the agents in the marketing of fish, and various aspects of processing and marketing in the area. The presentation is comprehensive, analytical and succinct and several little known characteristics of the industry in the area have been brought out. We can now know from the book, the size of capital investments in the industry on various types of units, their economics operation, fixed and variable costs, financing patterns, problems relating to variations in catches and cash flow, catch and price relations, market mechanism, role of merchants and agents etc. All this information, which it must have been quite arduous to assemble, is extremely valuable to those connected with the management of fishing industry.

The study contained in the book being of a pilot nature, one can visualise what kind of extension of these studies can be made to cover the industry in all its aspects, for the entire nation.

In course of time, inexorably, the industry is bound to develop with the operations of larger vessels as the base. The economics of operation of these vessels, the handling and processing of catches, transportation and internal and external marketing will be considerably different from those of mechanised boats. The present study will no doubt be a good basis to undertake a study of the situation with reference to larger vessels which are mostly being operated from Visakhapatnam.

The Centre for Management in Agriculture of I.I.M. Ahmedabad have so much to say that is not known now, once they make a study.

The conclusions from the study are sharp. In order to make the wholesale marketing of fish at landing points more effective very apt and enforceable recommendations have been made. It has been recommended that institutional finance should be made available to fishermen to meet expenditure connected with repairs and maintenance of their units. Pointing out the absence of effective linkage between primaries and GFCCA, the study has urged that co-operative organisations should be developed at wholesale and retail levels. While it is concluded that boat economics justify investment in boats fitted with inboard engines and outboard motors, it has been recommended that new investments must be made only in OBMs on the one hand and larger sized trawlers on the other. So far as the recommendation on introduction of larger trawlers is concerned, it deserves support. However, besides trawlers, introduction of other types of larger vessels such as long-liners, purse seiners, pole and line vessels, gill netters etc. have also to be encouraged. It is difficult to agree with the other recommendation that only boats with OBMs should be introduced. With OBMs one cannot operate trawl nets. Trawling is by far the main fishing activity. Therefore, besides OBM boats IBE boats also require to be encouraged. OBM boats have several limitations in respect of endurance, and availability of adequate space for various purposes on board. For day fishing and for methods other than trawling OBMs are good. The present need being to encourage boats to stay out for a few days, and thereby upgrading the (Contd. on p. 25)

The Deep (Sea Fishing) Question : Can Culture Overcome Energy Costs ?

Dr. E. G. SILAS

The recent ushering in of the new ocean regime coincides with major upheavals in the capture fisheries, primarily due to economic constraints, the principal one being the spiralling energy cost supplemented by a combination of other factors such as the escalation in cost of construction of fishing vessels, gear and equipment; cost of developing infrastructure facilities including harbours; and the ever-increasing labour cost. These make us ponder whether we should invest in deep-sea fishing in a large way or whether the priority should shift to aquaculture—in short, we are faced with the horns of a dilemma!

With the declaration of the Exclusive Economic Zone (EEZ), an urgency has crept in to know all about the living resources of our seas, to plan development programmes to judiciously exploit and utilise the resources. Escalation in energy cost within a short period has thrown into disarray many a well thought out scheme. The other critical factor which has a significant say is resources availability and that too, the availability of high value species, to contend the imbalances created by rising energy cost and attendant features.

Sometime back, "World Fishing" (1978) in a lead article entitled 'Thought for fuel' reported a statement to the effect that in ten years time, the availability of oil at any price may be in question, bringing into doubt the major philosophy of fisheries development in the Third World. The question is posed as to whether it is right

to continue the direct application of modern technology in countries which will find themselves unable to meet the fuel requirements of the advanced catching and processing methods. In the context of resources availability, FAO (1979) has indicated that the Indian Ocean offers some scope for increased catches, but most coastal resources of shrimp or other high value species are fully or over-exploited. Such an overview creates an element of scepticism, and one need not be surprised that those concerned would wish to critically explore these problems. The subject matter of energy resources in capture fisheries and aquaculture and ways and means of utilising alternative energy formed the main theme of a Workshop sponsored by the Asian Development Bank (ADB) and the International Centre for Living Aquatic Resources Management (ICLARM) in March 1981. It is estimated that even with high fuel cost, the energy cost of capture fisheries is comparable to that required for the production of grain in intensive agricultural practices and is hardly a fraction compared to production of live-stock.

Modern fishing in the high seas is no doubt an energy-intensive industry. Recently Edwardson (1976) computed the gross energy requirements in the Scottish fishing industry and estimated energy input/fish production out-put ratio to be about 3 Giga joules (GJ) in the case of 80' steel purse-seiners and 56 GJ in 210' steel freezer trawlers.

We are going to be a late starter as far as commercial fishing from the outer half of the continental shelf and the oceanic waters within and contiguous with our EEZ are concerned. Our exploited marine fishery resources stand around 1.3 million tonnes (average for the past few years) of which about 60 per cent is accounted for by the traditional artisanal sector. The 50-odd larger trawlers which heavily depend on one resource, namely shrimp accounts for hardly one per cent of the total production, the rest being accounted by the mechanised boats of which over 10,000 operate in the inshore waters, once again seeking mainly shrimps for the export market. Any large-scale industrial effort to tap sardine or mackerel resources which form the main stay of a sizable part of the small-scale fisheries sector along the west coast will have repercussions on this sector. This being the case, let us examine whether there are any sizable fish stocks which could be profitably exploited from beyond the 50 m depth zone using larger deep-sea going fishing vessels. Intensive exploitation may have to take into account the following:

- i. Species occurring in large concentrations and which have to be caught in high volume at low cost partly for conversion into fish meal and other processed products.
- ii. Species with high unit value.
- iii. Species for providing supplies for internal consumption.

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- utilisation of conventional and non-conventional resources, both demersal and pelagic, from the shelf waters lying beyond 50m—resources such as the threadfin bream and rock cods;

- exploitation of larger pelagics such as tunas, billfishes and sharks from the continental shelf waters and high seas;

- fishing for the cephalopods from the shelf waters (squids and cuttlefishes) and adjacent oceanic waters (squids);

- utilisation of non-conventional deep-sea resources, particularly mesopelagics, bathypelagic fishes and crustaceans.

An area-wise categorization is necessary at this stage since the spatial and bathymetric distribution of fish complexes are such that

for operational efficiency different strategies may have to be adopted for different situations. It is here that priorities have to be identified for possible areas for increase in production. It will be evident also that exploitation of the resources which lie beyond (a) the 50 m depth but extend to the continental shelf edge and the upper continental slope and in the waters above and (b) the waters of the EEZ outside the continental shelf and the contiguous high seas will have to be planned separately for specific resources as well as on logistics of operations of different types of fishing vessels. Such a consideration is necessary in the light of priorities that may have to be given for developing short-term and long-term strategies for enhancing fish production. This will have to be done on the importance and utility of the resource reconciling to the fact that escalation in energy cost is not a temporary or a

passing phase. The harvesting of the resources would require larger fishing vessels capable of undertaking longer voyages at a higher energy utilisation level. The following resources may be identified for immediate attention wherein larger fishing vessels would be necessary for exploiting them and as this cannot await long delays on exclusively indigenous construction programme, immediate commencement could be planned through joint venture/chartering arrangements. The resources are as follows:

The Gulf of Mannar and southwest coast of India have extensive resources of anchovies. The potential yield of this resource has been estimated to be 4-5 lakh tonnes. Hardly one tenth of this resources is harvested from our entire coast. This is a low priced fish and as such large harvests have to be ensured to make the operations commercial. It is thus

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a case of low priced high volume fishery. The options are to throw it open for industrial fishery using large factory fishing vessels or to introduce purse-seiners and midwater trawlers of 14m upwards to larger trawlers of 23m and 30m size considering the proximity of the fishing grounds to the available fishing harbours at Tuticorin, Chinnamuttam and Vizhinjam.

It should be possible to exploit about 100,000 tonnes in a long range phased development programme, a part of which may be reduced to fish meal. The fishery will be for a 3 to 4 month (June to September) season when fish aggregate into close schools and heavy concentrations occur in the Gulf of Mannar and the Wadge Bank.

Wadge Bank has rich resources of quality groundfish such as perches and this resource could be fished by trawlers of 23m. size during the season, October to January/February. Could we plan operations to yield about 5,000 tonnes? The trawlers would during the rest of the year be deployed to operate off the south-west coast in depth of 50 to 150m for resource of catfish and ribbon fish to bring in a catch of 5,000 tonnes or more. Similarly extensive resources of *Nemipterus Japonicus* (threadfin bream) which has good market is present all along our coast in the 40-70m depth zone. Additional production to the tune of 20,000 tonnes could be realised through a planned programme along the south-west coast.

Along the shelf edge from Cape Comorin to Goa, an appreciable resources of Kalava (estimated potential yield about 35,000 tonnes) has been discovered. Could we plan introduction of suitable vessels to carry out line fishing or trap fishing to bring in a catch of 10,000 tonnes of this resources?

Good concentrations of horse-mackerel have been identified on the Wadge Bank, off the south-west coast, and off the Gujarat coast. Harvesting of these resources by purse-seining or pelagic trawling would have to be given importance, as an additional production to the tune of about 20,000 tonnes may be possible.

The sciaenids, Ghol, Dara, Koth, Dhoma, catfish, pomfrets, horse-mackerel, seerfish and eel available along north-west and north-east coast beyond 50m depth could be exploited immediately to increase production to the tune of about 40,000 to 50,000 tonnes.

Other resources that could be fished from 30 to 80m depth zone are the squids and cuttlefishes which could be taken by operating appropriate gears by even smaller vessels of the size 14-17m. In the Cape Cochin area an additional production of 3,000 to 5,000 tonnes should be possible.

From the continental shelf edge and upper continental slope along the south-west and south-east coasts it would be possible to exploit the deep sea fishes, prawns and lobsters. However, it may be necessary to process the fish and prawn catch on board the vessel in order to preserve their quality. A production to the tune of 1,000 tonnes could be planned for this quality species from 180 to 400 m depth. Since sizable quantities of by-catch will result from such operations, appropriate post harvest technology for utilising this will have to be developed.

B. Resources of the high seas:

SQUIDS: There is a paucity of information about squid resources though qualitative data of an indicative nature of the resource is available. However, there is a need for resources survey for squids and a prefeasibility

and a feasibility study before any large-scale operations could be planned.

TUNAS AND BILLFISHES: In the case of tunas and billfishes, the picture is different. There is an established tuna longline fishery in the Indian ocean by Japan, Taiwan and South Korea.

One area where we need more information is on the seasonal occurrence in different areas of surface species such as skipjack and young yellowfin tuna which could support purse-seine fishery. There is scope for augmenting production in the pole and line fishery in the Lakshadweep area by finding ways and means of developing a steady source of bait even through mariculture, and attracting tunas by Fish Aggregation Devices. Vast areas of the Andaman sea is highly productive for the surface species of tunas. Purse-seining for such species is bound to come up in a large way in the Indian Ocean. Environmental data such as temperature, thermocline distribution and its seasonal fluctuations in the Indian Ocean would help considerably in purse-seine operations. However, it should be clear that tuna fishing involves operations not only inside our EEZ, but also in the contiguous high seas and if necessary with bilateral arrangements in the EEZ of other nations. Estimates of potential resources of surface species from the Indian Ocean could lead to purse-seining are: skipjack 225,000 to 400,000 mt. and smaller tuna 100,000 to 200,000 mt. The production of tunas from coastal waters (ab. 88,000 tonnes); and through pole and line fishing, gill-netting and surface trolling from insular areas (mainly Sri Lanka, Maldives and Lakshadweep, Seychelles, Comoroons, Mauritius Reunion (ab. 50,000 tonnes) and

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The hull is of the single chine form, giving a large fish hold, a spacious engineroom and a bigger accommodation under deck.

The hull is divided into six watertight compartments: forepeak, crew accommodation, engineroom, fish hold, fuel tanks and aftpeak/netstore.

Freezing of the catch is done by the brine tank on the main deck and by a blast freezer in the hold.

The propulsion installation consists of a Caterpillar marine diesel engine of 270 kW (365 hp) at 1800 rev/min, driving a fixed pitch propeller.

The three-drum fish winch is hydraulic driven. Two auxiliary engines drive a compressor for the freezing installation, generator and a bilge pump.

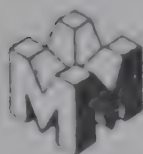
In the superstructure are provided a galley/messroom, two toilet/shower cabins, two double and two single cabins. In the forepart below deck an eight berth crew compartment.

Nautical and fishing equipment, comprise among others radar, radio installation, direction finder and echosounder.

The vessel obtained the classification Lloyd's 100 A1 "trawler" and Lloyd's Machinery Certificate (LMC).

Main particulars:

length overall	23.50 m
length between p.p.	21.00 m
breadth mld.	6.50 m
depth at side	3.40 m
draft (mean)	2.65 m
fish hold capacity	abt 70 m ³
fuel oil capacity	abt 40 m ³
fresh water capacity	abt 15 m ³



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the high seas (94,000 tonnes though long line) is about 230,000 mt (1979). There is need for a planned development of the tuna fisheries. Some of the salient aspects of this problem is documented in a recent publication (CMFRI Bull No. 32) which may in your hands. The value of tuna and allied fishes produced commercially in India in recent years is about 50-80 million rupees.

Bulk of the targeted production of young yellowfin and skipjack in the surface fishery by purse-seining and the large oceanic tunas and billfishes in the sub-surface fishery by longlining will have to be achieved through joint venture or chartering arrangements. As may be envisaged, this would be a predominantly export oriented development.

In addition to the above conventional resources, certain mesopelagics which are unconventional and unexploited resources having potential commercial importance are also available. One such resource is the mesopelagic fishes comprising of two or three species, discovered during exploratory survey carried out by the R/V Dr. Fridtof Nansen. Enormous resource of this group in the North Arabian Sea particularly between 50 and 300 m has been reported. This resource may be harvested by midwater trawls and bottom trawls employing 20/30 m trawlers of 50/55 m trawler-cum-factory vessels and during night by purse-seiners. The catch may be used for fish meal and oil, rather than for direct human consumption. The projected economic viability of fishing and the fish meal and oil production based on the resource by operation of 20 and 30 m trawlers as well as 50/55 m trawler-cum-factory vessels was worked out by Ulf Wijkstrom (1978) of FAO. It is indicated that the exploitation of

this resource is also a case of low priced high volume fishery as a 20m trawler has to earn US \$ 1200/- day for 200 fishing days to achieve break-even, while a 30m. trawler has to earn nearly the double.

Krill:

Another unconventional resource which is receiving considerable interest is the "shrimp-like" Antarctic Krill. Technologies of exploitation and utilisation for human or pet animal use are being developed by the Soviet, Japanese and German scientists. It is reported that the maximum sustainable yield (MSY) of the Krill is between 100-200 million tonnes. It is also reported that this resource occurs at a rate of 9-15 kg/m² in certain regions in the Southern Indian Ocean. While the fishing industry of the country may not be immediately interested in the exploitation of this resource for obvious reasons, the national government under its long-range development programme may consider the exploitation of this resource and its use.

The above estimates of possible harvest of resources from different fishing grounds beyond the present zone of conventional fishing, indicate that by proper planning and development of infrastructure we may be able to increase our annual marine catch by about 2,00,000 tonnes in a short-term projection by 1985.

Are we prepared for this type of step-up in production? My reading is that mentally, yes, but so far as the essential physical facilities are concerned, No.

Our fisheries development programmes have earlier not looked at deep sea fishing in its proper perspective and to-day we are faced with all these problems and an urgency to tackle them concurrently. In short, as far as deep sea fishing is concerned, it is

almost like starting on a clean slate.

What are our assets?

- an enlightened awareness among policy planners and administrators that something should be done immediately, particularly as we are answerable to the added responsibility we have taken in declaring an EEZ.
- one expression of this is the new charter policy which had an incubation period and is presently being liberalised and also accelerated.
- the fishing industry has also realised that time has come for diversification to specific high unit value resources or low-price high-volume resources.
- we have some information on the resource part of it, of an indicative nature, which could also be taken advantage of in planned development.

On the negative side we can reel off long list of needs and requirements, but attention may be bestowed on:

- the gap in the required number of deep-sea fishing vessels to be put in use, which we may not be able to construct overnight, but may have to make good through joint venture/chartering arrangements, or even outright purchase, if there should be provision.
- the necessary infrastructure for berthing, bunkering, landing, storage and transportation, at least at identified fishing harbours, the provisions of which will by itself generate additional production by existing fleets.
- development of internal marketing for the anticipated increase in production and external marketing for diversified products.
- the need for specific incentives to be provided for the deep sea

- fishing industry such as tax benefits, suitable rise in investment allowance entitlements and suitable investment subsidies on cost of new vessels, soft loans and so on.
- fuel subsidy in view of the rise in cost of diesel oil (from Rs. 1.50 in March 1978 to Rs. 3.40 per litre in July, 1981; price per kilo litre Rs. 742.00 in 1978-79 to Rs. 3,100.00 in 1981-82). In addition, suitable cash subsidy support for export oriented industries may be considered.

All these point to the fact that we have not given the development of deep-sea fishing the due attention it deserves. Ad-hocism and a haphazard development is what we have seen hitherto. Many a time, the job is half done as exemplified in our harbour development programmes. Despite these shortcomings, deep-sea fishing has an important role to play in our national development programmes and under no circumstance can this be relegated as of low-consequence on account of mere escalation in energy cost. In fact, concurrent escalation is a feature for high value products in the export trade as well as in the internal market. The need of the hour is an integrated development programme with an aggressive marketing strategy to make deep-sea fishing viable and remunerative.

IS AQUACULTURE AN — ALTERNATIVE?

'Aquaculture' broadly includes all the activities involved in the culture of economically important organisms in the fresh as well as salt waters. The R&D programmes in both these regimes have given encouraging results during the past decade. I do not intend elaborating on the excellent

results obtained in fresh water fish culture, especially in induced breeding, composite fish culture, air breathing fish culture and cage culture in running water and so on. Nevertheless, major constraints are encountered in seed and feed production, in obtaining consistent production rates and in the management of the water quality in the context of ever increasing domestic and industrial pollution.

'Aquaculture' in our coastal waters is by and large carried out at present on traditional basis and until mid seventies, the fishing industry had considerable scepticism on the possibilities of coastal aquaculture development in our country. However, it is gratifying that with the concerted R&D efforts the potential in the sector is now realised, particularly for augmenting the prawn resource, the exploitation of which in the capture fishery is indicating a declining trend in certain fishing grounds along the coast. Besides prawn culture, we have developed, in recent years, indigenous technologies for the culture of mussels, edible oysters, seaweeds and pearl oyster production in the open sea.

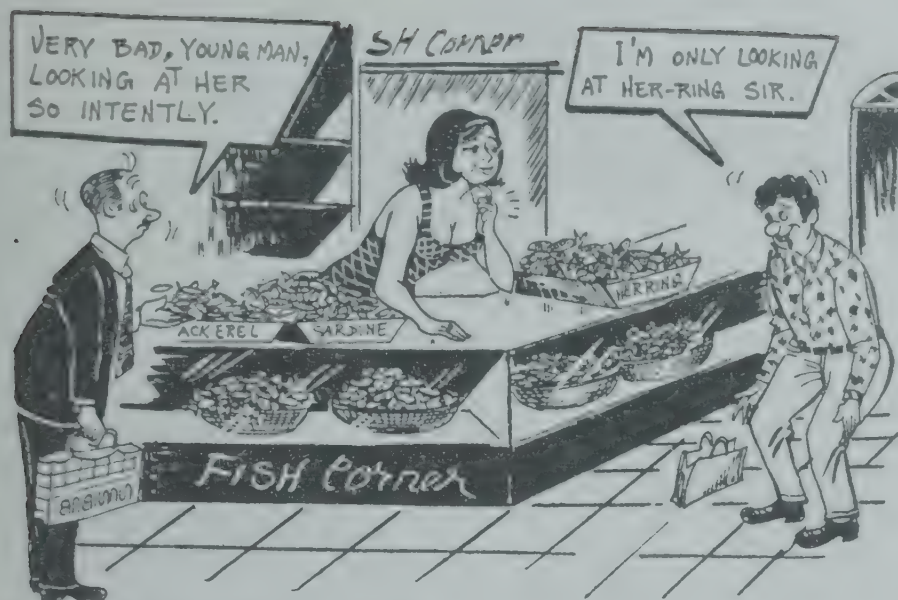
With the rapid technological innovation, two systems of culture are now available for choice. The first system entails sophisticated technology with controlled breeding, hatchery production of seed, intensive feeding, disease and water quality monitoring and skilled management of the entire culture operation as in the case of prawn culture in Japan, seabass culture in Italy and France, Salmon culture in Norway and Scotland. In contrast, the other system involves the culture of organisms low in the food chain in the natural or semi-enclosed waters, without feeding or with supplementary

simple management principles. The former is energy-intensive with relatively high unit production, while the latter is semi-intensive with moderate production.

In this country, national priority has been assigned to penaeid prawn culture. In the global aquaculture programme, however, the penaeid prawns are assigned relatively low priority in consideration of the capital-intensive technology and the products being mainly used for export rather than for internal consumption of the producer-country. Nevertheless, in the context of high demand for prawns, availability of vast stretches of brackishwaters as well as fast growing and high-priced species such as *Penaeus monodon*, *P. indicus*, *P. merguensis* and *P. semisulcatus* we have reasons to develop prawn culture on a large scale. With recent demonstrations on the culture of selected species with simple management principles, it has been shown that higher yields can be obtained.

While there is no doubt that there is great scope for the development of prawn and fish culture in the coastal waters, it is essential to draw up our strategy for the rapid development and balanced growth of the sector. Are we to go in for prawn culture with emphasis on high technology? or on a low-cost technology suitable for rural industry? What are our policies in the distribution and utilisation of water areas? How best can the development of agriculture, irrigation and aquaculture be streamlined in the larger interest of the country and socio-economics of the region? What are the major constraints confronting the development of prawn culture in our country?

The scientific efforts towards the feeding or fertilisation, and adopting development of prawn culture has



come forth only during the past ten years. During this period, our endeavour has been to telescope the technical, training and extension inputs to transform the traditional practice to an improvised system to realise better yield and income. While note-worthy success has been achieved in this direction, several scientific aspects relating to ecology, physiology, reproduction, nutrition, pathology, and genetics of prawns need further investigation and understanding. Besides, the soil characteristics, coastal ecological conditions, water quality, high tidal amplitudes as those prevailing in the North Maharashtra and Gujarat coasts, and unnatural vagaries of the nature such as cyclones and tidal waves of the east coast affect the prawn farming in the coastal waters. To this day, we do not have detailed mapping of suitable sites for developing culture system. The seed procurement at present depends on its natural availability and not related to the hatchery production system. Development of appropriate food for different species is still not on a commercial production level. We need expertise on farm engineering, so essential to construct a viable culture base. Thus, there are several constraints in the coastal aquaculture of prawns. Similar problems and

constraints in varying degrees beset the development of culture of other organisms. The non-availability of a viable market, for example, for the farm produced mussels and oysters is one of the major constraints encountered in the propagation of these systems.

The main urgency now is to increase our fish production and to produce commodities of appreciable unit value, both in terms of quality and quantity. In prawns, we have a product of high unit value and they could be cultivated in saline waters. We have large national assets in the form of 1.7 million hectares of brackishwater and highly suitable species resource for culture. The strategy for development initially may have to be an area-wise approach, paralleling the development of agriculture. As the technology advances, intensive culture operation with seed, feed and other inputs could be developed and at that level, prawn farming would also become an expensive operation, unless sound and proper management is adopted.

A major future development programme will be in sea ranching to replenish and build up natural stocks of prawns and finfish.

However, this may have to be taken up as a development programme of the government.

The point is now whether aquaculture could be an alternative option to deep sea fishing. Or, in other words, whether it is prudent to invest in aquaculture rather than in deep sea fishing. No doubt, aquaculture has a major role to play in augmenting fish production, but not at the cost of development of deep sea fishing which is capital intensive, and normally, beyond the scope of small-scale sector. On the other hand, in India, aquaculture will have a rural base, and can be developed as an integrated system in which there is more involvement of the small fish farmers, and at the same time offers opportunities for investment on large scale. Thus aquaculture could develop independently as a parallel programme, and not an alternative to deep-sea fishing. Deep-sea fishing will have an important role to play in our national economy.

MARINE FISHING INDUSTRY MALADIES AND REMEDIES (Contd. from p. 16)

capabilities of small fishermen, the encouragement should be to progressively introduce IBE boats. Further as a conscious process, efforts to increase capacities of IBE vessels have to be there continuously.

The arrangement and presentation of the subject matter in the book are well planned. The narration is simple and the usage of 'jargon' is minimal. The captains of fishing industry, fishery administrators, students and professionals would undoubtedly be greatly benefited by the publication. The cost of the book is Rs. 65/- and this is quite reasonable, considering the valuable material it contains.

Potential Prospects of Modern Carp Hatchery Model CIFE D-81

DR. S. N. DWIVEDI

The major constraint for development of fish culture in India is the non-availability of quality fish seed. Till now the seed production is dependent vagaries of nature but the problem has now been solved with the evolving of a modern hatchery Model CIFE D-81 at CIFE, Bombay. It is now possible to breed fish without rains in this modern hatchery. Thus for the first time we have become independent of the monsoons and natural environment. During the current year fish seed production without rains has been demonstrated at Bhadkhat and Damdama in Haryana, Aarey and Pune in Maharashtra, at Powerkheda in M.P. and at Balabhadrapuram in A.P. The above achievements are extremely significant particularly when India has gone for World Bank loan of Rs. 35 crores to develop fish seed production in five of her states namely West Bengal, Orissa, Bihar, Madhya Pradesh and Uttar Pradesh.

Under the World Bank Project the cost of fish seed will be Rs. 80/- per thousand of fish fry. With the escalation of prices it is likely to increase to more than Rs. 100/- per thousand. Moreover, we have been making efforts to start fish seed farms under the World Bank assistance for the last two years, but the first fish seed farm is yet to be established to go into production. On the other hand, the carp hatchery, CIFE Model D-81 which has been developed at CIFE can be deployed at the existing

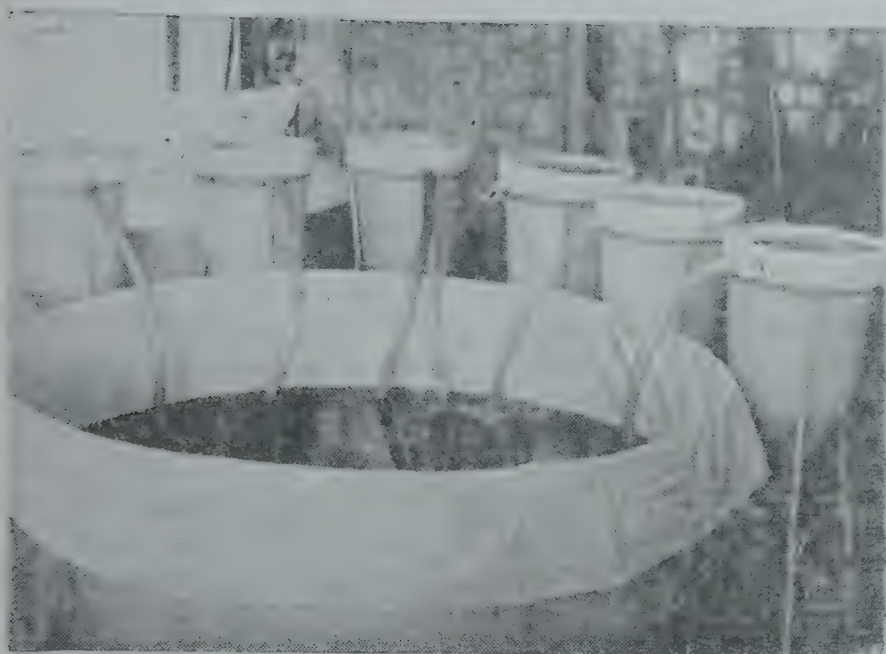


MODERN CARP HATCHERY AT CIFE

fish farms. The system has different models for selection depending on the availability of the funds and the requirements of the area. Pilot projects can be started for less than Rs. 2.0 lakhs in less than 6 months. It will cost Rs. 60/- per thousand of fish seed produced in this system. The system has also the flexibility for adaptation in all parts of the country without very stringent requirement of particular agro climatic Conditions. The technology is simple and has been adopted by a number of farmers and farmers in coastal districts of A.P. have taken a lead. These projects have also been financed by ARDC through Banks. It has been shown that this system can be implemented by farmers who have not even passed high school.

Income from fish seed production, combined with horticulture, vegetables cultivation, dairy can be as high as Rs. 40,000/- per ha. per year. It is for this reason that more and more farmers in A.P. and elsewhere are converting their paddy fields to fish farms. It may also be mentioned that fish seed production is a quick money spinner in which parent fish, 2 females and 1 male of 6 kg. costing about Rs. 60/- would produce more than a lakh of fry fish which fetch more than Rs. 4000/- in A.P.

Experience has shown that, in this system including labour and inputs, it costs less than Rs. 2000/- to produce 100000 fish fry which is sold for Rs. 4000/-. Thus the entire project is highly remunerative. Apart from this, Indian and exotic carps which are bred in



**MODERN CARP HATCHERY AAREY FISH FARM,
BOMBAY**

this system, feed mainly on phytoplankton and zoo plankton. They are the cheapest and fastest converter of plant materials into animal protein which is very popular and fetch very high price. Since fish is cultured in rural areas with low technical input this modern carp hatchery CIFE Model D-81 is really the answer

to produce animal protein and fight malnutrition.

It is envisaged that by the turn of this century we would require about 13 million tons of fish, out of which 7 million tons can come from fresh waters. Increasing the present fish production of 1 million to 7 million tons calls for an all

out effort with the assistance of state governments, universities, research institutes and financial agencies to transfer technology of fish seed production to the farmers.

Aquaculture is a simple technology but needs a very careful and systematic approach, in which raining to the farmers plays an important part in achieving the desired results. The concept of starting fishery estates would really provide the right approach to bring about area development and ensure optimum production from the ecosystem. The district organisations and farmers need to be encouraged to come forward and take advantage of this technology.

It is the experience in Maharashtra that owing to erratic or late monsoon, or a prolonged dry and hot spell, the fish do not breed and the eggs are reabsorbed. Modern carp hatchery Model CIFE D-81 is the answer to this situation.

The hatchery (model D-81) can be employed to double fish seed production within a year from the existing resources and can ensure breeding in all parts of India, irrespective of climate and weather conditions. With this the fishermen could breed fish despite delayed monsoons and fish eggs could be hatched successfully in the hatchery even when farm ponds might be having bright sunshine.

The hatchery has been demonstrated to parties at 17 places in the country, including Damdama fish farm in Haryana, the Bhadbhada fish farm, Bhopal, the Rawathbhata fish farm in Rajasthan and the fresh water fish farm in Balabhadrapuram, A.P.



**DEMONSTRATION OF HATCHERY AT CIFE BOMBAY
TO VISITING SCIENTISTS**

(Contd. on p. 38)

Haryana FFDA's' Feat Bumper Fish Crops

Haryana fisheries could make very little impact on the village folks for accepting fish farming in the first decade after the formation of Haryana in 1966. Only a few gram panchayats reluctantly purchased fish seed after great persuasion by the Fisheries Department for stocking village ponds. In the first few years after the formation of Haryana, some of the progressive panchayats started realising that fish culture can provide additional income to the village for rural upliftment. The production of fish from panchayat ponds in the first decade after 1966 was not more than 200 kg on an average in 18 to 24 months. It is only after the establishment of first Fish Farmers Development Agency in Karnal

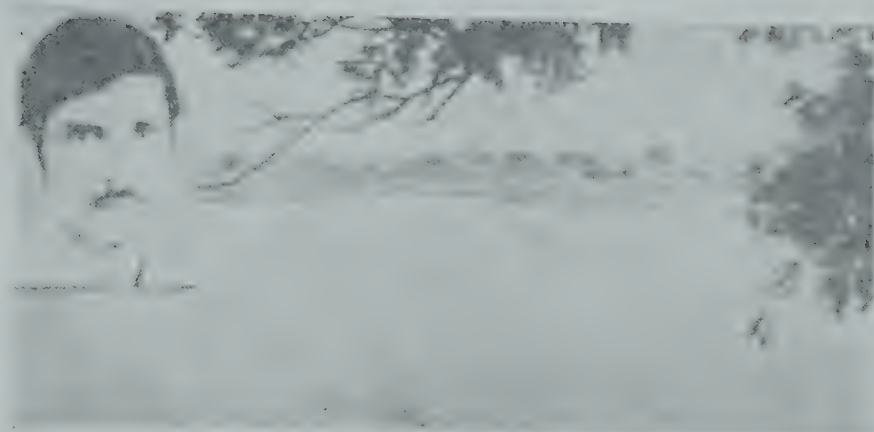
district in June, 1976 that people of this area started accepting fish culture on moderate scale. Two more new Agencies at Sonapat and Rohtak were established in June, 1978. These Agencies have created lasting impact on the village folks with the result that gram panchayats voluntarily now come forward depositing amount in advance to the Fisheries Department for supply of fish seed to stock village ponds. Presently there is a large scale awakening among the village folks for adopting fish farming after observing that fishery industry can provide very remunerative employment. The panchayats auction fish farming rights which are leased out at competitive high rental value. Lately finding that the fish farmers who have taken panchayat ponds

on lease are making handsome earnings, they have now adopted fish farming and are now no longer interested to lease the community ponds to an individual for fish farming. There are now 546 fish farmers who have taken on long lease about 540 panchayat ponds having water area of 657 hectares. Learning from the experience of the fish farmers who have taken panchayat ponds on lease, recently some of the agriculture land owners have also constructed fish farms at their own lands for fish farming. These fish farmers have found that fish farming is very paying proposition and can provide many times more revenue than from the agricultural crop. The following are some of the results:

TABLE : Fifteen Progressive Fish Farmers, five each from the three Fish Farmers Development Agencies.

F.F.D.A.	Sr. No.	Name of Farmer	Village	Pond Area (hect.)	Ownership	Average per hect. per year production (kg.)	Remarks
Rohtak	1.	Sh. Kashmiri Lal	Chandi	1.50	Lease	6000	Average fish crop of 2787 kg. per hectare was harvested by the progressive fish farmers of the three Agencies. Highest fish field of 8000 kg. per hectare was reaped by Ranvir Singh of Rohtak dist. The fish production achieved by Kashmiri Lal of Rohtak was also very encouraging.
	2.	Sh. Rameshwar Singh	Bhambewa	2.00	-do-	3000	
	3.	Smt. Naniya Devi	Baliana	5.00	-do-	1200	
	4.	Sh. Umed Singh	Bharan	3.00	-do-	5000	
	5.	Sh. Ranvir Singh	Makroli Kalan	2.00	-do-	8000	
Sonapat	6.	Sh. Kuldip Singh Chauhan	Mamirwala	0.80	-do-	2200	by Ranvir Singh of Rohtak dist. The fish production achieved by Kashmiri Lal of Rohtak was also very encouraging.
	7.	Sh. J. S. Pannu	Kundli	5.00	Own	600	
	8.	Sh. Bhagwan Tyagi	Rai	4.00	Lease	1375	
	9.	Sh. Sawrup Singh	Badmalik	2.52	-do-	1680	
	10.	Sh. Gurbahhan Singh	Bahalgah	0.68	Own	3235	
Karnal	11.	Sh. Ram Sawarup Chauhan	Butana	1.20	Lease	1833	only 477 kg. per hectare probably for the reason of poaching reported to have occurred. The yield of Pannu was, however, low because of new excavation of ponds having very turbid water. Pannu has a good stock of fish population still available in his pond but the growth of fish has been noticed very slow.
	12.	Sh. Darshan Lal Chhaba	Assand	3.00	-do-	477	
	13.	Rajinder Pal Singh	Assand	2.00	-do-	2050	
	14.	Sh. Maha Singh	Guda	2.00	-do-	1350	
	15.	Sh. Dharam Pal	Dharamgarh	0.80	-do-	3812	

Kashmiri Lal of village Chandi in Rohtak district, took the village pond named "Tirthwala" having water area of 1.5 hect. on lease at a rental value of Rs. 1,100/- per year for five years during the year 1980-81. He stocked his pond with 10000 Common Carp seed in June, 1980 and produced 7000 kg. fish up to April, 1981. He stocked it in July, 1981 with 25000 seed of Major Carp & Common Carp. He has so far produced 5000 kg. fish. During this period the farmer has earned about Rs. 30,000/- as net profit.



Rameshwar Singh of village Bhambhewa of Rohtak district is an educated unemployed. He took a village pond on lease having water area of 2 hect. for five years at the rate of Rs. 1,500/- per year in November, 1978. He stocked his pond with 15,000 seed of Common Carp in March, 1979, and harvested 820 kg. of fish in Dec. 1979. Because of drought he could not harvest a good crop. He reclaimed the pond in 1980 after securing a loan of Rs. 3,700/- from a bank. He again stocked the pond with 10,000 seed of Major Carp & Common Carp in 1980-81 and produced 4000 kg. of fish. During the year 1981-82, he has again stocked his pond with 18,000 fish seed. A canal breach created heavy floods in his village in August, 1981. A part of the livestock



escaped in floods. Only after six months of stocking he started harvesting during November, 1981 and even then he sold 4000 kg. fish.

He has repaid his full reclamation loan and input loan from the sale of fish and saved enough money for his living.

Umed Singh of village Rewari Khara in Rohtak district is a progressive farmer. He took 3 ponds in village Bharan having 3 hect. water area on lease for 7 years at rental value of Rs. 1410/- in the month of Jan., 1981. He stocked his pond in April, 1981, with 15000 Common Carp seed and 64000 Major Carp seed in July, 1981. He has partially harvested 2000 kg. fish in Oct, 1981 & 8000 kg., fish in Dec., 1981. The ponds still have a crop of about 5000 kg. He has so far earned a net profit of Rs. 35,000/-.





Nanhiya Devi is a resident of village Baliana of Rohtak district and belongs to a Schedule Caste called "Dhanak". The occupation

of her family is casual catching of fish and labour. She took the village pond known as "Dokhar" having 5 hect. water area at a rental value of Rs. 2000/- per year for five years. She stocked her pond with 13000 Major Carp & Common Carp seed in Sept. 1980, 23000 in March, 1981 & 19000 in July, 1981. She has partially harvested 2000 kg. of fish in Feb., 1981, 2300 kg. in August, 1981, 4800 kg. in October, 1981 and her pond is still having a good stock. During the above period she has earned more than Rs. 50,000/- and hopes to have a crop worth Rs. 70,000/-.



Ranvir Singh, an unemployed youth of village Makroli Kalan in Rohtak district took the village pond on lease in April, 1981 for Rs. 850/- per year. The pond has a water area of 2 hectares. He has stocked seed of Common Carp in May, 1981 and again 16000 & 22000 seed of Major Carps in July, 1981. Being unfamiliar to fish marketing & due to non-availability of fishermen in his village, he has auctioned the pond fish for Rs. 25,000 only. Thus he has produced from his pond fish weighing about 8000 kg. in six months.



J. S. Pannu of Kundli village in Sonapat district converted 5 hect. of agriculture land into a fish farm by spending Rs. 37720/- during 1978-79. He produced fish weighing 2200 kg. in 1979-80 & 3800 kg. in 1981-82. He earned Rs. 15,000/- and 28,000/- respectively in these years. He now plans to expand his farm by converting one more hect. of land into fish ponds.

Bhagwan Tyagi of Rai village in Sonapat district took village pond having 4 hect. water area on lease during the year 1980-81, renovated it at a cost of Rs. 24,000/- and stocked it in the same year. He has produced 5500 kg. fish & earned Rs. 33,000/-. He has also supplied surplus fish seed numbering over one lakh to other fish farmers at Rs. 50/- per thousand.



Kuldip Singh Chauhan of Baiyapur village in Sonapat district took a pond of 0.81 hect. water area on lease. He spent Rs. 5,000/- on reclamation of the pond. He produced 2000 kg. fish in 1979-80 and 3500 kg. in 1980-81 and earned Rs. 10,000 and Rs. 18,000/- respectively.



Rajinder Paul Singh of village Assandh in Karnal district took his village pond on lease at a rental value of Rs. 600/- per year. He spent only Rs. 1500/- on renovation of the pond, stocked it with 10600 seed in 1976-77 & produced 7970 kg. fish. He again stocked 3900 seed in 1977-78 and produced 7310 kg. fish. He again stocked 6050 fish seed in 1978-79 & produced 950 kg. fish. He has earned Rs. 41,390/- in 1977-78, Rs. 43,440/- in 1978-79, Rs. 4820/- in 1979-80.



Indian waters abound in fish and Britannia has entered fishing as part of the national policy to organise a more scientific exploitation of resources in future. Catches are landed in seafresh condition and speedily processed to preserve the natural product quality.

The Britannia fleet of 6 trawlers, include two modern 23 metre steel vessels imported from Mexico it is proposed to augment the fleet in a phased manner, and possibilities of entering the field of deep-sea fishing are being explored currently.

Supplementing these efforts at sea is a programme of developing brackish water prawn culture and Britannia is among the pioneers investigating this area. The objective in both cases is to secure the freshest and best quality raw materials.

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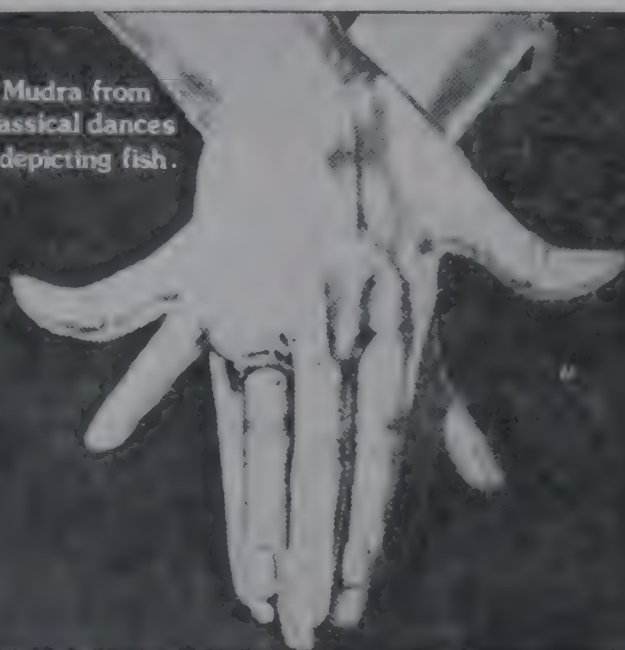
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even deeper. Marine products
are now a major source point of
our national growth and well-
being.

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supports more than four million
people. It is a major influence on
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Yes, Fish is our hope of the
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India Objects to Shifting of FAO Bay of Bengal Programme from Madras to Columbo

V. KRISHNASWAMI
Our Madras Representative

The Government of India has objected to the move of the FAO to shift the headquarters of the FAO Bay of Bengal Programme from India to Sri Lanka. A regional project on small scale fisheries in the Bay of Bengal region, it has been functioning from 1979 with its headquarters in Madras. The Indian demand to retain the headquarters in Madras will be considered by the Bay of Bengal committee at its meeting in November next.

Sri Lanka proposed at a meeting held in Columbo on December 7 last year that the headquarters of the U.N. sponsored Bay of Bengal Programme (BOBP) be shifted from Madras to Columbo. Sri Lanka had been exerting pressure on the FAO to shift the headquarters to Columbo saying that the "Indian Government's commitments to the Bay of Bengal Programme was not wholehearted" While there were 25 delegates from five countries, namely Bangladesh, Malaysia, Maldives, Sri Lanka and Thailand attending the meeting, no representative from India was present. It was stated that this was because both the Minister for Agriculture, Mr. Rao Birendra Singh and the Agricultural Secretary, Mr. Mukherjee could not be present at the meeting as they were outside the country. No other officials could be present for the ostensible reason that a government order prevented them to undertake foreign travel during

Parliamentary session. The Union Ministry of Agriculture was stated to be strictly adhering to this order. Whatever be the reason, the absence of India at the meeting has now led to a threat that would hamper the progress of small fishermen in Tamil Nadu and Andhra Pradesh. It is gratifying that the government of India has objected, although it is late, to the transfer of the BOBP headquarters to Columbo.

Funded by the Swedish International Development Authority (SIDA), and executed by FAO, the BOBP seeks to develop and demonstrate new technologies that will help improve the conditions of small-scale fishermen in the five-member countries of Bangladesh, India, Malaysia, Sri Lanka and Thailand. India with its long coast line along the Bay of Bengal has been reaping benefits from the BOBP with Tamil Nadu and Andhra Pradesh states getting a good deal in the development of fisheries.

Set up in 1979 for a period of five years, and with a total budget of eight million dollars, the BOBP has a small staff of fisheries experts and national support personnel. It has been operating with its headquarters in Madras with sub-offices in other member countries.

The FAO's representatives, according to reliable sources, have

agreed to consider Sri Lanka's proposal to shift the BOBP headquarters to Columbo but the move may not fructify before 1983. But this move is likely to affect the fishermen of Tamil Nadu and Andhra Pradesh. Close collaboration between BOBP officials and the two State Government officials had helped in developing beachcraft and fishing gear which had helped to get bigger catches.

In Tamil Nadu, for example, the BOBP, in consultation with a Norwegian boat expert had improved the local catamaran. Prototypes of two beach craft IND 11 and IND 13 were accepted by the Tamil Nadu and Andhra Pradesh governments as being most suited to fishing along their coastlines. The IND 11 model is one of the most popular among fishermen of Ennore. It is light and simple.

The BOBP has also introduced high-opening bottom trawls to tap under-utilised fish resources and reduce the pressure on the over-harvested shrimp. Experiments are being made in modernising fishing gear which are likely to be welcomed by fishermen.

The new net, the high opening bottom trawl, can be used by traditional shrimp boats to capture substantial quantities of food fish (as opposed to shrimp). It can thus reduce the pressure on fast dwindling shrimp resource, help to tap much needed food fish resources at a low energy cost and harness idle trawler power in the non-shrimp season.

The BOBP has been conducting experiments with high-opening bottom trawls at Palk Bay of Mandapam and in the Gulf of Hannar of Tuticorin. The Mandapam experiments were held in March-July, the Tuticorin (Contd. on p. 38)

Western U.P. ...of Fishermen and Fall in Fish Population

Dr. A. P. Tyagi

Dr. Ranjana Saxena

Dr. J. K. Sahgal

The state of Uttar Pradesh has been classified into Eastern, Central, Western, Bundelkhand, and Hill regions. Western U.P. includes the districts of Agra, Aligarh, Bareilly, Bijnor, Budaun, Bulandshahr, Etah, Etawah, Farrukhabad, Ghaziabad, Mainpuri, Mathura, Meerut, Moradabad, Muzaffarnagar, Pilibhit, Rampur, Saharanpur and Shajahanpur, which are famous for the high agriculture yield and natural resources. The past few decades have witnessed an industrial boom in this region. However, the researches have proved that the environment had to pay heavily for man's quest for materialistic progress. When all the professions are expanding fast, the progress in fisheries is far from being satisfactory in spite of voluminous researches involving huge funds. On the assumption that this is due to the neglect of the fishermen community, a survey was undertaken.

The population statistics collected through the community heads of various places indicate that there are approximately 20,000 working fishermen in Western U.P., though no official record of their population is available. In the districts of Moradabad and Bijnor, this community has a very sound organization. The former district along with half of Rampur district and Kashipur (Dist. Nainital) have their community head - Rajah (King) with his head quarters at Kashipur. The district of Bijnor is probably the nucleus of fishermen community thrive upon nature's wealth. However, this is not the case in

this area. Normally the fishermen localities with their stinking, narrow lanes are situated in the remote corners. The houses are haphazardly constructed leaving no space and proper ventilation. The religious dogmas have prevented the adoption of family planning. It has resulted in over crowding which forces the kids and the male members of the family to stay out of the home. Such fellows fall an easy prey to vices like, gambling and stealing. The people in the age group of 13th to 16th year rarely extend a helping hand in fishing to their elders. The kids instead of going to the school, prefer to go to the fish market where they easily earn two to three rupees per day by taking the job of de-scaling and skinning the fishes. Most of the parents are apathetic towards the education of their kids either due to poor economic condition or due to the allurements of income through child labour. The lack of education has created endless problems. Abusive language is used irrespective of age consideration. The adoption of fashion without education is

proving suicidal as majority of the in this region. The Shahamahal (Emperor) lives at Nagina while the Badshah lives at Sherkot. The General of the community belongs to Surjannagar while the Colonel lives at Dhampur. The minister-ship (Vazarat) rests with Afzalgarh, Nahtor and Shilvara. The rest of the districts have adopted Panchayat system. The community panchayat constitutes five or more elderly fishermen. It is a curious fact that they settle all their disputes, from family feud to property issues through these community courts. Rarely they seek the help of law courts for this purpose.

In every fish market there is a commission agent who auctions the whole catch arriving in the market. An annual meeting of the community issues the rights of commission agent to the highest bidder out of their own men. This amount is kept at community's disposal.

SOCIO-ECONOMIC PROBLEMS

Generally the fishermen should be considered to be well off as they young folk consider the ancestral profession as derogatory. It is feared that after few decades the offspring of this community will be fishermen for name sake only and the professional expertise in diving, netting, net-making etc.



will disappear. Those who are economically well off never go for a catch, instead they purchase other's catch or import marine fish.

The earnings through poaching and underhand tactics in sale have spoiled them, consequently they do not appear to be interested in hard work to earn their bread. The fishermen are so lax that even a slight change in weather or petty ceremonies are sufficient to upset their routine.

Education and hygiene are closely linked to the economic status of a community. In U.P. the Fisheries Dept. do not exercise any rights on the running waters. Instead the fishing rights are auctioned by the state irrigation dept. These auctions go in favour of big contractors who employ outside labour and extract the maximum out of the water. On account of this pactice, the poor fisherman is left in the lurch. The fishing in the village ponds is often forbidden due to the religious feelings. Under these circumstances the fisherman is unable to make both the ends meet and resorts to poaching and other underhand means.

The sanitary conditions are poor in and out side their houses. The poor nutrition and sanitary conditions have made them prone to a number of infectious diseases, tuberculosis being the major killer. A good majority of them suffers from amoebiasis. The logged up water inside and around their houses, poor ventilation and dampness make them easy victim of malaria.

It is surprising that none of them has so far adopted pisciculture, probably due to the indifferent attitudes of fisheries department. Though the loan facilities are available through banks, for want of sufficient

assets as guarantee for safe return of loan, they are unable to get it. The establishment of fishermen's cooperatives could have been an answer to these problems but it is a pity that such cooperative societies are very few. The statistics indicate that in 1980 only twenty eight fishermen's cooperative societies were registered in this region of U.P. However, during the present survey only six were found functioning and the rest were found defunct.

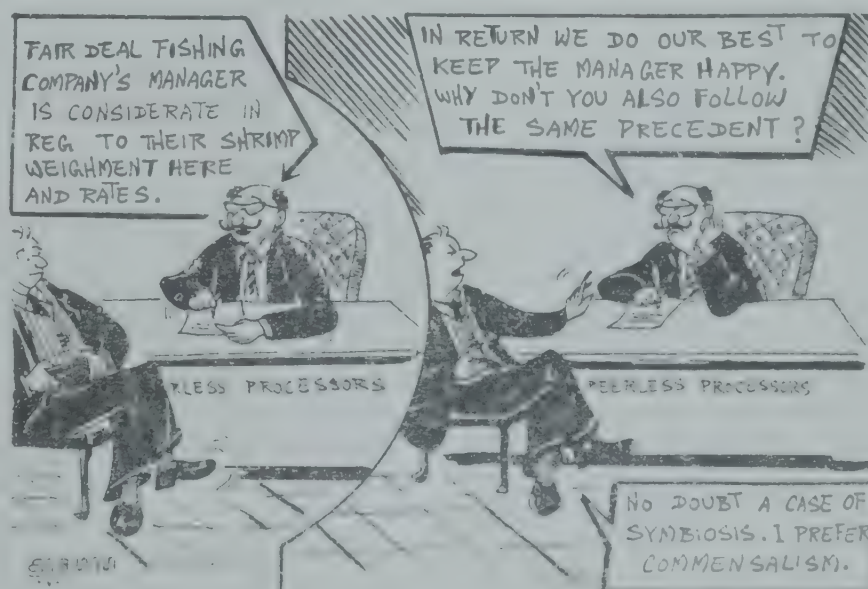
The local self governments also seem to be unconcerned about providing proper venue for fish marketing. In majority of Western U.P. districts the venue of fish market is shabby and the fishermen have to sell fish on mud-littered ground.

TECHNICAL PROBLEMS

The technical problems have played a big role in the socio-economic hardships of the fishermen community. The neighbouring states of Punjab and Haryana through which the majority of rivers flow, have better equiped fisheries departments. The contractors of

these states hardly leave anything to be netted down the streams in Western U.P. Though unknowingly, the men of the armed forces while camping in the vicinity of rivers and canals during out-door exercises, play havoc not only with fish but with the whole aquatic ecosystem. They use explosives like, G.C. slab, P.E.K. and 90 Grenade to obtain the fish. These explosives kill much more than their requirement. The dead fishes start rotting and fowling the whole stream. The fishermen of the neighbourhood of cantonments are generally found complaining of this disaster. These explosives are frequently used in the rivers, Yamuna, Ganges, Hindon, Kali, Gomti and their canal systems.

At some places like Khusipura (Muzaffarnagar), the natives add poison to the waters of Solani river to obtain fish. This poisoning kills the fishes in Ganges even, as Solani terminates into it. The effluent of the sugar factories and distilleries in the districts of Bulandshahr, Ghaziabad, Muzaffarnagar, Meerut and Saharanpur is a proven factor responsible for fish mortality. The effluent of paper mill



(Saharanpur), wood dust (Bareilly) and waste from utensil factories (Moradabad) are worsening the situation. The establishment of Mathura Oil Refinery with its toxic discharge is bound to create a hell for the fish life.

The rapid industrialization of Western U.P. is heralding the depletion of aquatic ecosystem, with fish being the direct victim. Natural calamities like, floods of 1978 and drought of 1979 have added further to the gravity of the problem. The availability of fish has become so scarce that most sought after varieties like, *Labeo rohita*, *Cirrhina mrigala*, *Catla catla*, *Cyprinus carpio*, and *Tor tor* have almost disappeared. After the day's strenuous labour, the fishermen are able to net *Chela bacaila*, *Puntius sophore*, *Puntius ticto*, *Trichogaster fasciatus*, *Heteropneustes fossilis*, *Clarias batrachus* and *Ophiocephalus* spp., which fail to give due return for their labour. The juveniles of the large varieties are also netted in these days of hardship, endangering the future prospects of a rich fish crop. Thus a shadow of gloom over hangs the fishermen community of Western U.P.

SUGGESTIONS

The various problems of fishermen community of Western U.P., as mentioned above, are a threat to their existence. The desperate fishermen are either falling victim to evils or they are leaving the profession and adopting rickshaw pulling, vegetable vending etc. for their livelihood. It would be the worst mishap, if this community vanishes as its survival is closely linked with the future of fisheries in the state. Therefore, the attention of the Government and P.A.O. is drawn towards the following steps to avert the crisis:

1. The state fisheries Dept. should take charge of running water fisheries also, as the irrigation dept. is so much engrossed in its own work that it cannot do justice to fisheries development.
2. While auctioning the fishing rights, the priority should be given to fishermen.
3. The village ponds should be auctioned by a fisheries official and not by the village Pradhan (Chief).
4. The cumbersome procedure of loan through banks, should be made practical and easier.
5. The state cooperative dept. in collaboration with fisheries dept. should establish fishermen's cooperative societies. The availability of constant guidance will save these societies from being labelled as defunct.
6. The fisheries dept. should attract and help the fishermen to adopt pisciculture.
7. The means devised to save the fish from natural calamities like, floods and draught must be publicised through field staff of the fisheries dept.
8. The Ministry of Defence should issue instructions to the men of the armed forces not to use explosives for fishing.
9. Deterrent punishment should be imposed on persons found poisoning the streams.
10. The industrialists have turned a deaf ear to all rules and regulations to prevent pollution. Pollution being a constant menace to fisheries, the concerned rules and regulations must be executed in right spirit.
11. The local governments should make efforts to allocate proper place for fish markets and improve sanitary conditions in fishermen's localities.
12. The fishermen population should be screened for the cure and prevention of diseases like, T.B. and amoebiasis.
13. The results of researches and the latest technical know how should reach the fishermen, through conducting part-time workshop cum refresher courses.
14. They should be encouraged to adopt family planning.
15. Approximately 90% fishermen are illiterate. Therefore, special efforts should be made to educate them with accent on fisheries matters, under the adult education programme. Once they taste the fruits of education, they would become interested in their children's education.

WORDSPIN

Can 'MOAT' be transformed into 'FISH'?

Yes : In the following grill start changing one letter at a time to form the next word arriving at 'FISH'.

See answer on page 45

M	O	A	T
F	I	S	H

NEWSLETTER FROM NORTHERN INDIA

Dr. A. P. TYAGI
Dr. RANJANA SAXENA

FORLORN FISHERIES DEVELOPMENT JAGADHAR'S PLIGHT

Jagadhari is a tehsil in Ambala district in Haryana. There are enthusiastic fish farmers in the tehsil who are anxious to acquire know-how and develop fish culture in the various tanks and ponds of the area. The major problem of the area is however lack of sufficient fish seed. Jaidar-Jaidari fish seed farm was sanctioned long back to provide adequate quantities of fish to the area. However, it is disheartening to note that it has not yet started functioning. At present the Jansui Headworks fish seed farm is the only source to meet the seed requirement of the area and the production from this farm is grossly inadequate.

The fisheries office of the tehsil presents a deserted look. It is of utmost urgency to activate this office and make it responsive to the needs of the emerging fish farmers. The fisheries officer has his own problems. He has no facilities to implement the developmental plans.

Apart from development of culture fisheries, the fisheries officer has also to take care of capture fisheries of the area. The capture water resources are auctioned to the contractors to the utter disadvantage of the fishermen community. As the fishermen are denied the opportunity to participate in the exploitation for their benefit, they resort to poaching. There is an enormous scope to provide means of livelihood to all these fishermen by inducing them to take to fish culture.

There is a fish farm at Chachroli. Another one is coming

up at Bhagwargarh. The State Fisheries Department has to take immediate steps to harness the interest among the entrepreneurs for the development of fish culture.

For Jagadhari fish market, the fish is procured from village ponds, Chhachroli fish farm, river Yamuna and West Jamuna canal. Some fish is imported from the neighbouring district of Saharanpur (U.P.) to meet the demand. The fish marketed includes Rohu (L. rohita), Mrigal (C. mrigala),

Catla (C. catla), silver carp, grass carp, Kalbasu (L. calbasu) and Mahaseer (T. tor). The other most sought after varieties are: Lanchi (W. attu), Singhara (M. seenghala), Magur (C. batrachus), Singhi (H. fossilis), sol and Souli (Ophiocephalus spp.) and Gujram (M. armatus). The nets used in fishing operations include cast nets, drag nets and gill nets.

Haryana has a big potential for fisheries development. The people are not only hard working but they are keen to invest in the newer avenues like pisciculture. The state fisheries department should exploit the opportunity. It is hoped that the people of Haryana will prove equally good on this front as they have proved in grain output.

MAVINI-THE MOBILE FISH PARLOUR IN U.P.

The U.P. Matsya Vikas Nigam Ltd., Lucknow runs a mobile fish parlour which is a commendable effort. The credit for running the parlour service goes to Mr. V.P. Khar, Executive Manager of the Parlour. Originally an employee of U.P. Fisheries Dept., Mr. Khar is on deputation to the Nigam (corporation). U.P. Matsya Vikas Nigam was incorporated on 26 Oct. 1979.

MAVINI, the mobile fish parlour started functioning at Lucknow from 7 Feb. 1982. Earlier, it served for the six cricket tests played at Kanpur. It is the only fish parlour with the Nigam and its main purpose appears to be to popularise fish and fish snacks at reasonable rates and to give publicity to the Nigam. The fish parlour not only serves cooked varieties like, fish tikka, fish kabab, fish biryani and fish fry; it also sells raw, ready to use, fish. However, the mobile van has poor

frozen storage facilities due to the lack of a generator to run it. The raw fish sale is stopped from June to September as fishing is prohibited during these months. To run the kitchen of MAVINI, the fish is purchased from the local fish market during this period.

The procurement of fish for MAVINI is the task of Mr. L.P. Sinha, Fisheries Executive, again a deputationist from the State Fisheries Department. He is over burdened as he has to leave the house at 7.30 A.M. on the procurement day and returns home only at 9.30 P.M., after the business is over at MAVINI. This indicates the lack of sufficient staff.

The Nigam depends heavily on the State Fisheries Dept. for its personnel. According to the available information 75% of the employees of the Nigam are deputationists from the department. 20% are working on daily wages and only 5% are regular



MAVINI – THE MOBILE FISH PARLOUR IN U.P.

employees of the Nigam. This explains the present slow rate of progress in the activities of the Nigam. The deputationists have their allegiance towards the fisheries department. As they could always go back to the department, the normal tendency is that most of them do not put forth their best. It is imperative that the corporation has their own employees through direct recruitment or by transfer of services from the fisheries department.

The U.P. Matsya Vikas Nigam Ltd. is three years old, but still it has not yet come upto the expectations of the people. Though the quality of cooked varieties sold by MAVINI was found to be exceptionally good, a number of people complained about the quality of fish sold at MAVINI. The lack of sufficient freezing devices may be the reason for it. When the Nigam's parlour section was visited by the FISHING CHIMES' team, only one freezer could be found in working order. The services of the Nigam should be organised on the pattern

of Karnataka Fisheries Corporation where a chain of stores with freezers is maintained from the catching point to the storage points. Besides this the Karnataka Corporation has refrigerated automobiles to carry the catch.

Contd. from p. 32

India Objects Shifting of FAO

experiments in July-September 1982. Further experiments have been alternating between the two centres. The clear superiority of the high opening bottom trawl to conventional trawls for catching food fish has been demonstrated by experiments.

In Mandapam, while the shrimp trawls yielded an average catch rate of 103 kg. of fish per hour, the high-opening bottom trawl yielded 282 kg. per hour with two boats. The catch composition of the fish was equally striking. As much as 95% haul from shrimp trawl consisted of silver bellies, a low priced fish. The high-opening bottom trawl, on the other hand,

netted substantial quantities of higher priced varieties such as sardines, carangids, pomfrets and catfish. The high opening bottom trawler is fuel efficient and can increase food fish supplies at relatively low fuel cost. It can also put the shrimp trawlers to good use during the off-shrimp season.

Contd. from p. 27

Potential Prospects of Modern Carp Hatchery

A demonstration was also held at the Aarey fish farm in collaboration with the state fisheries dept. Among private parties who have had demonstrations by the CIFE is the Nawab of Pataudi (Chiklod fish farm).

The hatchery consists essentially of breeding and hatching units. The former comprises large pools with spray, shower and water circulation systems. Fish are induced to breed in this unit.

The hatchery unit consists of vertical jars, each of a 40 litre capacity. Filtered and oxygenated water is used. Showers and spray systems are provided to cool the water and increase the oxygen content. The accumulation of carbon dioxide and other metabolites is prevented. The breeding and hatchery units are installed in an air-conditioned room or as at the CIFE in an air-cooled room to ensure controlled weather conditions.

The hatchery (big 24-bucket model) would cost about Rs. 1.50 lakhs. There are smaller models costing around Rs. 50,000. A farmer by investing Rs. 65,000 would be able to get a handsome profit.

The CIFE gives the technology free and trains interested farmers to update their skills.

KARNATAKA NEWSLETTER

FISHING TERMINAL AUTHORITY FOR KARNATAKA IN THE OFFING

It is understood that the Government of Karnataka has decided to set up Karnataka Fishing Terminal Authority to regulate and control activities at new fishing harbours. The Authority will be functioning in the first instance at Honnavar and Malpe fishing harbours. An ordinance is expected to be issued soon in regard to setting up of the Authority.

Under the regulations proposed, all fish landed at the harbours have to pass through the auction hall where sales records will be maintained. Maintenance of discipline and order at the port will be an important function of the Authority. Civil works relating to the harbours will also be undertaken

by this organisation. Major repairs connected with the basic harbour works may be entrusted to the Port Department. A Fishery Officer will be appointed as the Chief Executive. There will be a Board of Management with members drawn from the various concerned departments. The Director of Fisheries is likely to be the Chairman of the Board.

The Authority will levy a small fees on the fish transacted at the harbour, besides the collection of landing and berthing charges. Apart from this income, the Authority will have receipts from leasing of land for setting up of processing units etc. and by way of small levies from trucks and vans entering the harbour area and through the registration of various workers functioning in the port area.

* * *

MALPE FISHING HARBOUR

In our July 1982 issue it was reported that, owing to sudden

floods in a rivulet, the breakwater wall of the fishing harbour at Malpe had suffered serious breaches at different points. This was based on published information in news media. It has now been ascertained from the Director of Fisheries, Karnataka that no damage occurred to the breakwaters. During construction of the harbour itself, certain gaps were left in the retaining wall which is meant to contain dredged material from the reclaimed lands. These gaps, shown in the photograph, were stated to have been intentionally left, perhaps for erecting sluice gates.

90% of the capacity of the Malpe fishing harbour is now being utilised. A scheme for extending the facilities of the harbour with an outlay of Rs. 4 crores is now being worked out. Landings at this port are now stated to be of the order of 35,000 tonnes, mostly by purse seiners. Boat-side value of catches is estimated at Rs. 4 crores per month.

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Evaluation of Karnataka Purse Seiner Operations

Evaluation of purse seiner operations of Karnataka coast was conducted at meetings held on 27 and 28 July 1982 at the Fisheries College, Mangalore. Experts from the Fisheries College, Mangalore State Fisheries Department and Central Fisheries Institutes participated in the discussions. Mr. David James from FAO and M/s Keith Haywood and Krist Kersh of White Fish Authority, U.K., also participated in the discussions. There was a criticism during the discussions that the introduction of purse seiners had led to unemployment of Rampanni fishermen. In fact, it was stated that the traditional method of fishing with Rampanni was far better than purse seining. It enabled the rational exploitation of Sardines and Mackerel resources. Operation of purse seiners had resulted in over-fishing of Sardines and Mackerels. It was urged by the research institutes that further introduction of purse-seiners should be stopped.

MULTIPLE BENEFITS

Mr. Jayaraj, Director of Fisheries, Karnataka, answered the various points mentioned against the introduction of purse seiners, effectively. He said that fishery exploitation was considerably stabilised after the introduction of purse seiners. The fishing area increased from 5,000 sq.km. to 9,000 sq.km. out of the available total area of 25,000 sq.km. The fishing season for pelagic fishing also had been extended beyond December. Earlier, Rampannis used to conduct fishing from September

to December. With purse seiners, it had now become possible to exploit additionally anchoviella, horse mackerels, tunas and tuna-like fishes. The earnings of individual fishermen operating rampanni nets were never more than Rs. 5,000/- per annum. Now each fisherman operating purse seiners was getting a guaranteed income of Rs. 4 to 5 thousand per annum. The income of fishermen through operation of mechanised boats for shrimp was around Rs. 4,000/- per annum.

NEW HORIZON

Mr. Jayaraj stated that a major development from the introduction of purse seiners was that it imparted a new technical skill to shore-bound Rampanni fishermen and released them from the shackles of shore-operations. They now had a new horizon. Rampanni operations were only distributing poverty. In contrast purse seiner operations had been distributing wealth.

NOW IN THE MAIN STREAM

In Rampanni days, fishermen were beasts of burden, leading an isolated existence. Now, these fishermen, with the introduction of purse seiners were able to lift their heads and merge with the main stream of society. They now put on cleaner clothes and led more comfortable living. This transformation had attracted world wide attention. Impressed by this, FAO would shortly be holding a session to discuss this major development.

WHAT IS THE BASIS?

Mr. Jayaraj referred to the recommendation by research institutes that the number of purse seiners operating along the Karnataka coast should not be increased further. He wanted to know the basis for this recommendation. According to the estimates made by the research institutes themselves, it was stated that there was a stock of 1,50,000 tonnes of sardines and 1,00,000 tonnes of mackerels along the Karnataka coast. The present catch was only of the order of 1,10,000 tonnes. Such being the case, there was no justification in asking for limiting the number of purse seiners at the present level.

Mr. Jayaraj, felt that the economic forces would ultimately decide the number of purse seiners to be operated along Karnataka coast. He also revealed that the fisheries department wrote to the various banks not to provide finances for introducing purse seiners unless the applications came from groups of traditional fishermen connected with Rampanni operations.

Mr. Jayaraj conceded that, owing to rapid increase in number of purse seiners, fish prices came down. However, if it could be ensured that there was an average income of Rs. 2/- per kg. it would be lucrative. The Department was engaged in introducing necessary measures to ensure returns of this order.

KARNATAKA SUCCESS STORIES

Karnataka Fisheries Department has to its credit several success stories. Karnataka fishermen believed till 1956 that shrimp could be had only during monsoon season. Trawling was not known. It was successfully demonstrated in March 1956 with the help of the FAO expert Mr. Illugosen that shrimp could be caught in significant numbers through trawling. Effective demonstration in this respect was made with a 22 ft. long dan boat fitted with 10 H.P. engine and with Samudra, a 13m. long boat fitted with 18 H.P. engine. These demonstrations led to a shrimp revolution. There are now 1800 mechanised boats operating along the coast for catching shrimp.

PURSE - SEINERS

Another major revolution was in respect of introduction of purse seiners. There are now over 300 purse seiners operating along the Karnataka coast. This is a stepping stone for the introduction of larger purse seiners for covering wider areas.

MARKETING SYSTEM

Karnataka is the only maritime state in the country having an internal marketing system with ice plants and cold storages dotting several routes. These marketing routes came to be known as **COLD CHAIN** system. In the year 1981-82, 900 tonnes of fish was marketed through the cold chain system within the state. This was no doubt a small segment compared to annual total landings of 1,16,000 tonnes in the state. Yet, a significant beginning was made.

EXPORT DIVERSIFICATION

Karnataka was able to achieve diversification of exports. 160 tonnes of mackerels were exported last

year by the Karnataka Fisheries Corporation to Middle East. Another order for export of 450 tonnes of mackerels, lactarius and kowala has been secured by the Corporation.

ONE MECH BOAT FOR 8 KM

In respect of diversification of fishing effort also Karnataka made rapid strides. Over 360 boats were motorised for gill netting. 60% of fishermen population of the state are covered by mechanised fishing operations. There are 2460 mechanised boats/purse seiners in operation along the 300 km length of Karnataka coast. In other words, there is one mechanised boat for every 8 km. length of the coast line.

RAFT FISHING

Raft fishing has been successively tested and the state is now poised to make a major breakthrough in the sector. Unlike the olden days when fishermen would be idle for part of the year, now fishermen have employment throughout the year. For part of the year (Sept to about Feb) they are engaged in purse seining and during the rest of the period

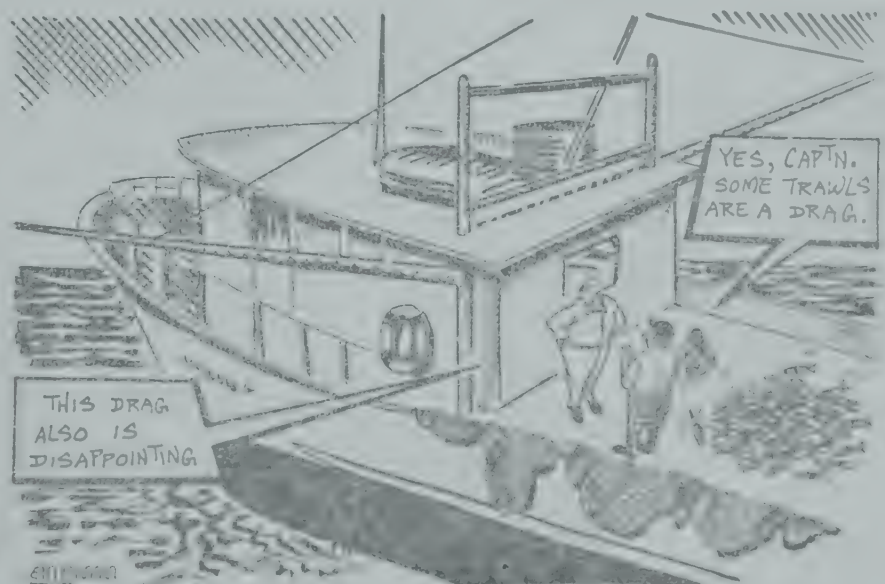
they are engaged in shrimp fishing.

WOMEN'S PARTICIPATION

Involvement of women in fisheries activities is a major triumph of Karnataka state. Apart from the organisation of fisherwomen's co-operatives for marketing of fish, women are being encouraged to undertake aquaculture. In fact, in a few areas, strides have already been made in this line. With the assistance from FAO, a major breakthrough in this regard is expected soon.

NO DISPUTES

In Karnataka, like other coastal states, there is no question of disputes between the traditional and non-traditional fishermen. Modern means of fishing such as purse seiners were provided to traditional fishermen coming from Rampanni groups. 90% of Rampanni groups were assisted in securing purse seiners. Thus benefits of modernisation accrued to traditional fishermen. Today, in a typical fishermen household of South Kanara, while the father pulls the Rampanni net, the son is engaged in purse seining and the son-in-law operates the trawler. If there is a dispute, it comes to every home. This has reduced the possibilities of disputes to a great extent.



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About two years' experience of marketing and sales in Fisheries sector in a reputed undertaking.

Pay scale :

Rs. 550-1200/- + allowances as per rules. (Scale - likely to be revised to Rs. 900-1770/-)

Exceptionally qualified/ experienced candidate can be given a higher start. Qualifications relaxable in case of highly experienced candidates.

Application, giving bio-data, particulars of experience and salary expected be submitted to Managing Director by 20th October, 1982.

(V. K. JOHRI)

CHIEF GENERAL MANAGER

4DAY CHRONICLE

VISAKHAPATNAM:

Owing to unfavourable weather conditions, trawlers stayed either at Visakhapatnam or at Paradeep ports for most of the month. Consequently the landings of the trawlers are poor. In contrast, the landings from small mechanised boats had improved considerably, each boat landing about 400 kg. of fish per day. Catches of shrimp had also improved from these boats, each boat bringing 20-60 kg. per day. The two Dutch built trawlers of M/s Yamuna Sea Foods which left on their maiden voyage on 31 July took shelter at Paradeep twice, due to bad weather. They had come back to Visakhapatnam port on 14 August. The catches were very poor, the landings from both the trawlers being 1.8 tonnes for the entire voyage.

The prices of the shrimp had come down drastically. For trawler catches, the prices offered were Rs. 115/-, 82/- and 64/- per kg. per tigers, whites and brown respectively.

The trawlers of M/s Marshall S a Foods and Uni Marine, which left on their maiden voyage during August could not do any effective fishing on account of bad weather.

M.T. Vijayanagar, one of the trawlers of A.P. Fisheries Corporation was taken on slipway for bottom cleaning. It was then noticed that some of the plates specially of the fish hold area, had been badly corroded. The plates had become thinner.

M/s Konkan Fisheries was in rough weather. There was a

continuing agitation by the floating staff. Their agitation arose when the shore management asked the floating staff to be present from 8 a.m. to 5 p.m. on their trawlers while they are at shore. The floating staff resented this and refused to sail after 5 p.m. Consequently 6 members of floating staff were suspended by the management. The Secretary of the Floating Staff Association was also suspended. Consequently there was a strike and the trawlers of the company out at the sea also returned back to join the strike. There had been daily demonstrations and slogan rising in front of the company's office. There had been inscriptions on the walls of the fishing harbour also.

COCHIN :

Being monsoon months, the fishing operations during June, July and August declined as usual. The severity of monsoon was experienced during the period from late June to mid August. Many vessels have left for other ports of both East and West Coast. Quilon, having the Karikkadi (A variety of Shrimp) season, attracted many vessels. No casualties were reported from Cochin though a few vessels capsized at Quilon during mid July.

Of the 1878 trawlers registered at the harbour, only less than 200 vessels operated from the harbour during this period. The number has started to increase during late August. The vessels operating from private jetties showed no marked decrease in number.

Till the end of July the trawlers landed large quantities of shrimp.

But during August the catch composition abruptly changed. The change was so drastic that the major item, shrimp, became a negligible part of the catch. Shrimp trawlers are said to sweep their nets just above the bottom deliberately in order to catch the bottom swimming fishes. One major reason for this is that fish varieties otherwise left as trash, have got a better price during these days.

The trawler catch was mainly composed of Nemipterus spp or Japanese threadfin bream (locally called as Kilimeen): Average quantity of this variety landed per day amounted to nearly 60 tonnes. The non-availability of cheap varieties like sardine and mackerel was the reason for high demand for this fish. In local markets on many days this fish was sold at Rs. 6/- per kg.

Lizard fish catfish and cuttlefish comprised the rest of the catch and the average quantity of these fishes landed per day were of the order 15 tonnes, 5 tonnes, and 10 tonnes respectively. The quantity of shrimp landed was very little and it fetched very high price.

Of the 571 gillnetters registered at the harbour an average no. of 100 vessels landed their catch every day. The catch was mainly composed of catfishes, sharks, pompanos, pomfrets etc. Tuna and Seerfish constituted a very little quantity.

Since purse seining is banned during monsoon, because it is the breeding season for pelagic species like sardine and mackerel, no seiners operated from the harbour during this month. The purse seining operations will resume during early September when the ban is lifted.

EFP's survey vessel *Matsya Nirikshini* landed a handsome catch of 35 tonnes of fish at Cochin harbour. The vessel conducted fishing operations in Wadge Bank area. The catch consisted mainly of lizard fish, carangids, cat fish and rays, besides cuttlefish and redsnapper. It is stated that the catch was netted in about 76 hours of operation. The unloading of such a heavy catch in this lean season created considerable activity at Cochin harbour.

The vessel '*Matsya Nireekshini*' is the largest fishing vessel in India. A little over 40 m. long, it has a propulsion of 2030 H.P. Imported from Holland in 1978, the vessel is provided with sophisticated electronic gadgets for navigation as well as for fishery resources survey. In addition to direct method of exploratory fishing with different gears, she is equipped for location of marine wealth by acoustic devices. The vessel has been engaged in the survey of marine fishery resources in Wadge Bank. The magnitude of the marine riches available in that area, their geographic distribution, seasonal fluctuation etc. have not been systematically assessed so far. The survey conducted by this vessel aims at such an assessment in order to determine the commercial feasibility of exploitation.

Fishing trawlers very seldom venture to high seas during south-west monsoon. But this vessel has now done it and conducted a survey in the southern grounds of India's exclusive economic zone in depths ranging upto 165 m. The project, through its fishing fleets based at all maritime States in the country, is now concentrating on assessment of fishery stock of Indian exclusive economic zone with special emphasis to deeper areas hitherto not

exploited. The bumper catch brought by this vessel is an important event in the exploratory survey of the high seas till now

known to the fishing industry with particular significance to the productive potentialities of the Wadge Bank.

MARKET TRENDS

There has been a marginal fall in prices of shrimp in Japanese domestic market. The off-take during OBON season was far less than the anticipated levels. The declining market trend was expected to continue for some more time. As fishing for shrimp was dull in India and Indonesia, the declining trend in prices for black tiger was expected to be stemmed soon. Some improvement was also visible in export prices for HL white/flower, in respect of India.

The demand for PUD in Japan, particularly smaller sizes was

not bright and this trend might continue for some more time. However PUD larger sizes were having a strong market, on account of low arrivals in June/July. It was expected that this would lead to better prices in the future. So far as USA is concerned, there had developed a strong demand for large and small shrimp, shell-on, and also for PUD.

The following were the export prices in early September 1982 for Japanese and U.S. markets.

JAPAN		
Type	Count Range	Price Range per KG/US \$
HL White/Flower	8/12-91/110	14.90-3.40
HL Tiger	8/12-71/90	14.60-4.10
HL Brown	16/20-71/90	13.30-4.50
PUD	80/120-300/500	5.10-2.20
	Broken	1.70
U. S. A.		
Type	Count Range	Price Range per Lb/US \$
PD Block	130/200-300/500	2.15-1.60
HL Brown	Broken	1.00-0.90
	16/20-71/90	12.70-4.20

The raw material prices at Visakhapatnam, so far as catches from mechanised boats were concerned, stood in the range of Rs. 95/- to Rs. 98/- per kg. in respect of Tigers and Whites, and Rs. 55/- to Rs. 58/- in respect of Browns. In regard to

trawler landings, Tiger, Whites and Browns commanded prices of the order of Rs. 122/-, Rs. 92/- and Rs. 66/- per kg.

At Kakinada, the prices of Tigers and Whites were Rs. 98/- and Rs. 72/- per kg., respectively.

In regard to Browns, and Poovalan the prices were in the range of Rs. 50/- and over Rs. 16/- respectively per kg.

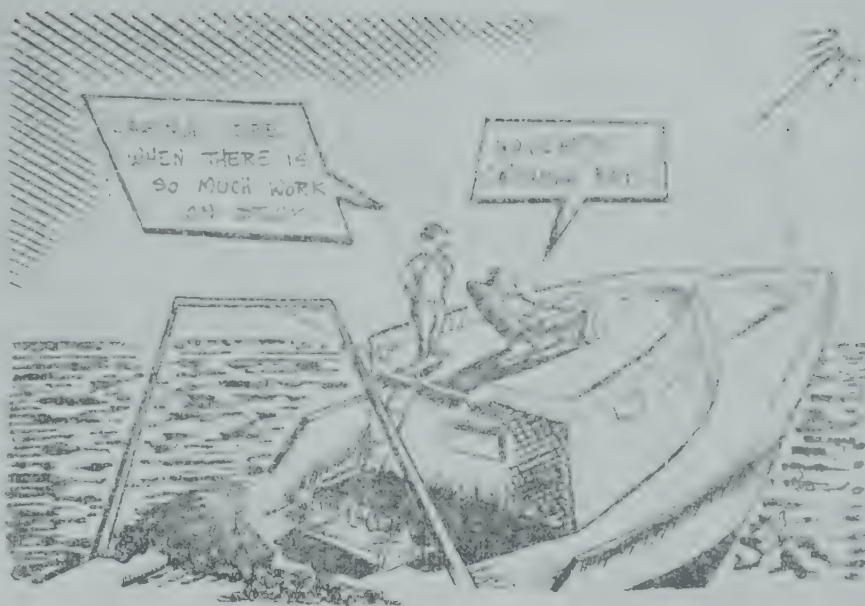
There was practically no fishing from Paradeep and Chilka lake owing to floods.

The catches in the Kakinada area were poor. While Poovalan was available in significant quantities, there was no demand from processors because of slackness in export orders.

In Calcutta area, the average landings of Tigers per day during fishing days were of the order of 5 to 10 tonnes, the price ranging from Rs. 38/- to Rs. 128/-.

In early September, there were good landings of whites off Palasa at 10 tonnes per day. At Konada also there were landings of the order of 5 tonnes of Whites per day during the period.

Shrimp catches were poor at Cuddalore. At Mandapam, catches, mostly of Flower, were moderate.



state of a) Goa b) Kerala
c) Maharashtra

5. Highest penaeid prawn landings take place in the state of
a) Kerala b) Maharashtra
c) Gujarat

6. The highest prawn landings from Bombay in 1980 belonged to
a) *Metapenaeus affinis*
b) *Parapenaeopsis stylifera*
c) *Metapenaeus monoceros*

7. The highest prawn landings from Cochin during 1980 belonged to
a) *Metapenaeus dabsoni* b) *Parapenaeopsis stylifera* c) *Penaeus indicus*

8. Percentage of *penaeus stylifera* from Neendakara in Kerala State in 1930 out of total penaeid prawn landings amounted to
a) 54% b) 91%
c) 65%

9. The highest constituent part of penaeid prawn landings from Madras in 1980 belonged to
a) *Penaeus monodon* b) *Penaeus indicus* c) *Penaeus semisulcatus*

10. The penaeid prawn locally known in Kerala as 'Karikadi' is
a) *penaeus semisulcatus*
b) *Metapenaeus affinis*
c) *Parapenaeopsis stylifera*

11. A fishery of a new shrimp, *Penaeus canaliculatus* was tapped in Kerala in Aug.-Sept. 1981 in the area adjacent to
a) Cochin b) Neendakara
c) Quilon

12. Highest exports of our marine products in Western Europe is to
a) United Kingdom b) Belgium
c) Netherlands

13. Average value of realisation per ton from our marine products exports in 1981 was
a) Rs. 31,080 b) 38,040 c) 43,800

14. Total quantity of frozen shrimp exported from India was
a) 55483 tonnes b) 54583 tonnes
c) 54538 tonnes.

15. The realisation of Rs. 286.71 crores from exports in 1981 was due to
a) Increased landings
b) higher prices c) marginal increase in landings and weaker rupee.

See Answers on page 59



1. The demand for fish in West Bengal per annum is estimated at
a) 6.0 lakh tonnes b) 5.00 lakh tonnes c) 8.5 lakh tonnes

2. Total inland water area in West Bengal is
a) 0.74 million hectares b) 0.47 million hectares
c) 1.74 million hectares

3. Prawn landings in India in 1930 were estimated by CMFRI at
a) 1,73,707 tonnes b) 1,70,737 tonnes c) 1,37,707 tonnes

4. Highest non-penaeid prawn landings take place in the

Answers to Wordspin
MOAT, MOST, MIST, FIST,
FISH.

Answers to Fishermen's Jumble
WORDS: FISHING, TRIGGER-
FISH, MENHADEN,
TUNA.

SOLUTION: INTEGRATED
FARMING

FISH IN PARLIAMENT

Mr. P. S. Sangma, Deputy Minister in the ministry of Commerce, while answering some questions posed by Mrs. Nazma Heptullah, Member of Rajya Sabha said that the government had taken a number of steps to boost the export of marine fish products. Chartering of foreign vessels, construction of fishing harbours, cold storage, provision of refrigerated vans, construction of fish landing platforms and improvement of quality of fish through distribution of insulated boxes and setting up of peeling sheds had been taken up by the government to give a boost the export of marine products.

He said that prawn culture scheme also had been taken up, and that government was not aware of the large houses giving up trade on account of dissatisfaction. In fact, large houses continued to operate in the industry, he said.

Mr. R. V. Swaminathan, minister of state in the ministry of agriculture, while replying to a question posed by Mr. Dennis of Lok Sabha said that there was no separate scheme for financing fisheries technocrats to build fishing trawlers indigenously. A subsidy of 33% of the price of indigenously constructed trawlers was sanctioned by the government, he said. He further said that SDFC would provide soft loans of 95% towards the cost of indigenous constructed trawlers.

Replying to Mr. Chingwang Konyak and Mrs. Sanyogita Rane on the role of big houses in the fishing industry, he said that out of 68 commercial deep sea fishing vessels available in the country, only 23 were under the big houses. He also said that the field had attracted many new entrepreneurs.

On the important incentives and concessions, Mr. Swaminathan said that chartering of foreign vessels, joint ventures, selective import of fishing vessels, subsidy on cost of indigenously produced vessels, soft term loans through SDFC, rebate on excise duty over high speed diesel oil on certain categories of vessels, were being provided by the government.

To Mr. Mohanlal Patel's question on fishing harbours, Mr. Swaminathan said that there were proposals by the government to construct fishing harbours on the west coast of India.

On coast guard, the deputy minister in the ministry of defence Mr. K. P. Singh Deo said, while answering Mr. A. P. Patil, that the coast guard development plan 1979-84 provided for the induction of modern ships, aircraft and helicopters to augment present force level of the coast guard.

For the purpose of anti-poaching activities, Sunderband area, Palk Bay, Gulf of Mannar, Andaman and Nicobar Islands and Saurashtra Coast had been categorised as sensitive areas. Ships and aircraft stationed in these areas conducted regular checks on the poachers and smugglers, the minister said.

On the losses run into by the fishery cooperatives Mr. Swaminathan, while answering to Mr. P. M. Sayeed, said that 45.6% of primary cooperatives were incurring losses and 27.3% were neither in profit nor loss. However the government had asked the Indian Institute of Management, Ahmedabad to conduct a survey and submit a report. He said that the report was still awaited.

On state fisheries development corporations, Mr. Swaminathan said that the SDFC had financed partly the purchase of trawlers by the state fisheries development

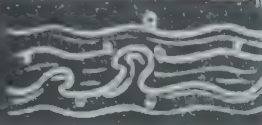
corporations. 6 trawlers were bought by the corporation in the states of A.P., Kerala and Tamilnadu, two each, and the loan repayment from them was more or less steady.

On charters, Mr. Swaminathan said that representation received against charters were being examined. He said that chartered foreign fishing vessels were permitted to conduct their operations only beyond our territorial waters and he assured that they did not interfere with the operations of traditional fishermen. He said that at present about 15 chartered foreign fishing vessels were operating in Indian water. One company had already reported a profit in foreign earnings of US \$ 125.561.62 so far in 1982.

Answering a question from Mr. Chintaman jena, Mr. Swaminathan said that 297 mechanised boats, including wooden trawlers and three medium trawlers were sunk, damaged or otherwise affected by cyclone on 3rd June 1982 in the coastal areas of Orissa. A central team visited the cyclone affected areas and recommended appropriate ceilings for relief and rehabilitation of the affected people, including fishermen and for repair and restoration of the properties damaged by the cyclone. These recommendations were under consideration.

Answering another question by Mr. Arjun Sethi, Mr. Swaminathan said that an International Conference on deep sea fishing was organised by the Association of Indian Fishery Industries. The Government had not however received the proceedings of the conference from the organisers as yet. In addition to Indian delegates, representatives from Philippines, France, Indonesia, New Zealand, England and USSR participated in the conference.

NEWS WAVES



BLINDED LOBSTERS GROW BIGGER

The experiments conducted in the field laboratory at Kovalam in Tamilnadu by the scientists of Central Marine Fisheries Research Institute have yielded surprising results in achieving giant size growth of lobsters. Out of six Indian lobster species, *Panulirus homarus* responded best with the blinding technique, known as ablation, experimented by the scientists. In this method the lobsters are blinded as a result of which bigger size of the body was achieved.

These techniques were tried in countries like Australia and America on spiny lobsters but there was no enhancement on the growth rate, according to Dr. E. G. Silas, Director CMFRI, Cochin.

The same technique has given good results in the case of Indian lobsters, Dr. Silas said. Actually, the lobsters grow at the rate of 180 gms. in two years. But when blinded, somehow the growth rate hastens up making the lobster to grow to a marketable size within five to six months from juvenile stage. It doubles in size and weight by another two to three months, Dr. Silas said.

The culture of lobsters and tiger prawns have been intensified by the CMFRI in the newly acquired saline lagoon from the government of Tamilnadu at Muttakadu village according to Dr. Silas.

INDIAN BOAT BUILDER'S BREAKTHROUGH

India's first evee wind-assisted mechanised fishing boat was

constructed by Sepulchre Brothers (India) Ltd, Madras.

According to Mr. Marini, business adviser to the company, the boat named 'Bhagyalakshmi' had remarkable endurance at sea. It had undertaken a voyage of 3000 km. from Bombay to Madras and it was reported to be continuing its journey from there to Visakhapatnam.

'Bhagyalakshmi' was powered by a 10 h.p. Mitsubishi-shakthi marine diesel engine costing Rs. 65,000/-.

FISHERIES OFFICIAL SHOT DEAD

Mr. Hidangmayum Sharat Sharma, a public relations officer of Fisheries Department, Imphal was shot dead by some unidentified gun men at his house at Uripok.

He was shot at point blank range when he refused to pay Rs. 20,000/- demanded by the gun men.

Though the police arrived immediately after the incident none of the killers could be arrested.

LAND FOR MPEDA HEADQUARTERS

50 cents of land have been acquired by the MPEDA at the

NATIONAL

Panampalli Nagar area in Cochin for constructing a multi-storeyed building complex for housing the MPEDA headquarters. The land has been purchased from the Greater Cochin Development

Authority with the approval of the Government of India.

REGISTRATION OF PEELING SHEDS

MPEDA has decided that the last date for receipt of applications for provisional registration of peeling sheds be extended to 30/9/1982 with the stipulation that the sheds be upgraded as per MPEDA standards before 31-11-82. The last date for receipt of subsidy applications has also been extended to 30/9/1982.

EXPORTS SCORE Rs. 149 CRORES DURING FIRST HALF OF 1982

With a production of 34359 tonnes the sea food exports from India earned about Rs. 149 crores during January to June 1982. During the same period last year the export earnings were Rs. 130.6 crores. But the quantity during the first half of 1981 was 39075.

BRITISH AID FOR ORISSA

A grant of Rs. 6.5 crores would be provided to the development of fisheries in the state of Orissa by the British government.

The amount would be spent on development of fishing harbours and construction of mechanised fishing vessels.

CALCUTTA MUNICIPALITY EMPLOYS GUPPY

Throughout the country every civic body fights mosquito problems with the help of the several chemicals, cleanliness and other methods. But the Municipal Corporation of Calcutta has come out with a novel idea of eradicating mosquito problem. Same way as cat is used for killing rats, the Corporation has been successfully experimenting on using guppy fish to clean the drainages which are ridden with mosquitos.

With the help of health ministry of West Bengal, new experiments are underway with guppy. Guppy eats mosquito eggs.

The idea of using guppy sparked when it was found that their presence in the drainage canals in Karpur has reduced the mosquito population in the area drastically. This led to experiments in different areas where hundreds of guppy were left in drainages and were kept under study. The result was instant disappearance of mosquitos from the drainages. However, there is still a small problem which the officials say that it could be solved easily. The mosquitos in certain areas lay eggs deep in the mud. But the guppy cannot reach them. It is not a big problem, the officials say.

Using guppy figured out to be a cheaper method than using chemicals. Besides, guppy could be reared in the laboratories in millions. Success of Calcutta Corporation may soon seep into drainages of other cities in India.

* * *

FORV FOR INDIA

Under Danish Aid Programme, the Government of India has decided to acquire a Fishing and Oceanographic Research Vessel (FORV) at a cost of Rs. 17.4 crores. The aid is interest free.

The vessel is expected to arrive in India by 1984 and would be jointly used by Indian Council of Agricultural Research, National Institute of Oceanography, Department of Meteorology and Department of Ocean Development.

* * *

APFC CONTINUES TO BE IN RED

The A.P. Fisheries Corporation continues to be in red. It appears that the salaries of the staff were either not being paid or paid partly since June 1982. The canteens run

by the Corporation, which were running on profit at the fishing harbour, Visakhapatnam and the State Government's Secretariat, Hyderabad were also closed down. Several procurements centres were also reported to have been closed down. So is also the case with ice plants. A lay off was also declared at the boat building yard Kakinada. It is stated that the yard would be handed over back to the fisheries department. Recently the state government is stated to have extended an accommodation of Rs. 30 lakhs to tide over the problems.

In the midst of the above mentioned depressing developments, the Corporation, it appears, is planning to add two more trawlers to their fleet. The question of acquiring the two trawlers of I.T.C. Ltd. seems to have again been reopened.

* * *

PRIZE CATCH

Off Bhimilipatnam on North Andhra coast, a saw fish weighing nearly 500 kg. was caught by hook and line from a catamaran by a group of intrepid fishermen. The fishermen struggled to tow the fish to the shore for over 8 hours. The saw fish was loaded in a truck and brought from Bhimilipatnam to the fishing harbour at Visakhapatnam. The fish fetched an amount of Rs. 1,300/- in open auction, a rare bounty to the fishermen.

* * *

INSURANCE COVER FOR FISHERMEN

Fishermen are to be provided insurance cover for the first time in the country by the United India Insurance Company. Fishermen, registered with the National Federation of Fishermen's cooperatives, will be covered under the Janata personal accident policy. For a nominal premium of Rs. 12 - per annum for an

individual, the policy will provide cover for Rs. 15,000 - in the event of death or total permanent disability. This insurance comes under the 20 point programme.

U.S. CURBS ON INDIAN SHRIMPS

The tightening of U.S. restrictions on the import of shrimps from India on the ground that they are contaminated with "Salmonella" germs in unfair said an Indian biologist at an International conference. While rejecting the shipments from India, the US was freely importing from India's neighbour shrimps caught only a few kilometres away from Indian waters, said Dr. V. D. Ramamurthy.

Dr. Ramamurthy, who is the Deputy Director of the Cochin marine products export development authority, was one of the four Indian scientists attending the joint Oceanographic Assembly which concluded recently. His remarks on the discriminatory standards on U.S. shrimp import came in response to a comment at the end of his paper presentation on marine pollution and its effect on shrimp production in India's west coast. Following an American scientist's comment that Indian shrimps contained germs making them unfit for import, Dr. Ramamurthy pointed out that shrimps from India were exported after scientific processing.

Despite the hurdles by the tight import standards, India remained the world's first shrimp producer and exporter, Dr. Ramamurthy said. He observed that the U.S. which had been freely importing from India cut down the imports three years ago on the ground of contamination. There is blanket ban on the import "but they have tightened the restrictions", he said. Shipments are often returned to India for reprocessing at enormous expense.

to India making the transaction financially uneconomic.

Giving an example of discriminatory standards, he said that the U.S. Food and Drug Administration "takes 50 samples from Indian shipments for analysis and only five samples from that shipped by India's neighbour". Dr. Ramamurthy said that presence of Salmonella germs in fishes was common. The germs which were associated with intestinal diseases were killed while cooking, he said. American scientists' own findings were that certain fishes caught in the US coast were also contaminated with germs of a more virulent type. He said the U.S. standards were applied only to imported fish as the Americans feared the imported germ and the native germ might form a virulent hybrid.

* * *

WORK ALLOCATION AMONG CENTRAL FISHERIES RESEARCH INSTITUTES

News is in circulation that the ICAR may soon make readjustments in the items of work handled by Central Fisheries Research Institutes. The indications are that the Central Institute of Fisheries Technology will be asked to take care of processing technology only. Its craft and gear wing may be shifted to Central Marine Fisheries Research Institute. The intention seems to be that with such a reorganisation both CMFRI as well as CIFT can play an effective role in the development of fisheries. In addition to the above changes there is also a talk that all matters relating to coastal aquaculture will be transferred from CMFRI to Central Inland Fisheries Research Institute.

* * *

NATIONAL FISHING CORPORATION?

It is understood that a proposal is under active

OBITUARY



MR. H. K. KAUL

Mr. H. K. Kaul, 48, a stalwart in the field of Indian marine fishing is no more. The sad news of his untimely demise in

Indonesia reached us on 3rd September 1982.

Mr. Kaul made outstanding contributions for the development of Indian marine fisheries. As fleet manager in the marine products division of Union Carbide (India) Ltd. at Visakhapatnam he assiduously worked out and established systems, strategies and procedures for the operation of deep sea fishing vessels in India. After a dedicated service for over 6 years in the marine products division of Union Carbide he joined M/s. P.T. Agrocab, subsidiary of Union Carbide at Surabaya in Indonesia in March 1982. Almighty took him away to heaven, leaving a host of friends and admirers, Mrs. Kaul, an eighteen year old daughter and a ten year old son his mother and several relatives behind. We extend our heartfelt condolences to the bereaved family.

consideration of the Union Department of Agriculture to set up a National Fishing Corporation which will be entrusted with the responsibility of stepping up the national fishing fleet. There is optimism that this proposal will be cleared by the Government and the Corporation will be set up soon.

* * *

IMPORT OF FISHING VESSELS

There are possibilities that Government may soon come up with a notification inviting applications for the import of fishing vessels other than shrimp trawlers. Unlike the previous scheme of 1977, there are possibilities that Government may take up coordination of the programme through identification of a few specific sources for import. The specifications and

prices may be finalised by the Government and the companies be asked to opt for one of the sources. The notification is also likely to cover indigenous construction of fishing vessels.

* * *

INDIAN TEAM'S VISIT TO PHILIPPINES AND INDONESIA

An Indian Team consisting of S.P. Jakhanwal, Joint Secretary (Fisheries) Mr. S.K. Das, Asst. Commissioner (Fisheries), Mr. S.N. Rao, Director, MPEDA, Mr. Mohapatro, Managing Director, Orissa Maritime Corporation and Mr. N.P. Singh, President, AIFI, visited Indonesia and Philippines to make a study of the development of fisheries in those countries and to assess the possibilities of collaboration with those countries for the development of Indian marine fisheries. It is

understood that the visit proved to be extremely successful. Both Philippines and Indonesian enterprises expressed serious interest in joint ventures particularly for the development of tuna fishing in Indian waters. It is expected that follow-up action in the matter will soon be initiated.

* * *

IMPORT OF DUTCH TRAWLERS

Readers are aware that import of the second batch of trawlers from Holland Craft, Holland, was halted for the reason that the Dutch Builders insisted on a heavy increase in price. It is now understood that they have agreed to stick to the earlier price of Rs. 67 lakhs per trawler. In view of this development, it is understood that the government are favourably inclined to agree to give extension of time to the various parties to complete the various formalities. However, such cases where loans have not been sanctioned by the SDPC earlier may not be given this concession.

* * *

UNESCO'S HELP FOR KERALA FISHERMEN

It is understood that UNESCO will establish six rehabilitation centres at a total cost of Rs. 20 lakhs along coastal areas of Malappuram district in Kerala. While one centre each will be constructed at Rerimangalam and Neduva in Tirur taluk, four numbers will be constructed in Ponani taluk.

* * *

JAPANESE SEAFOOD STUDY TEAM IN INDIA

A 3-member study team sponsored by the Tokyo Fishery Development Corporation, visited India in July 1982, and went around seafood processing and exporting centres in India. The team consisted of Prof. Akira Nakai, Marine

Products Marketing Expert, Tokyo University of Fisheries, Mr. N Hagiwara, Secretary General, Japan Marine Products Importers Association and Mr. Hiroshi Nakai, Nutritional Expert.

The Team's study, it is understood, covered present production, marketing systems, activities related to joint ventures and dealings by Japanese trading houses in producing countries. The team had originally planned to visit Indonesia and Korea. However, after considering the favourable observations made by Mr. Kazuya Kodama, erstwhile President of the Japan Marine Products Importers Association on marine products industry during his recent visit to India, the Team decided to visit India instead of Indonesia.

* * *

TRAINING COURSE ON BRACKISHWATER FISH FARM MANAGEMENT

The Central Institute of Fisheries Education, Bombay, has conducted a three-week training course on management of brackishwater fish farm commencing on 7th September 1982 at their Kakinada Centre in Andhra Pradesh. Details will be published in the next issue of FISHING CHIMES.

* * *

FISHING ZONES FIXED IN KERALA COAST

According to the rules framed under Kerala Marine Fisheries Fishing Regulation Act-1980 the entire coastline of the Kerala State has been divided into four different zones, details of which are given under:—

First Zone: The area from the shore upto 16 fathom line in the sea above the coast line of the State from Kollengode in the South to Edava in Trivandrum District for a length of 78 Kms and the

area upto 8 fathoms line in the sea along the coastline from Paravoor South to Manjeswaram in the north for a length of 512 Kms. (Fishing by all fishing vessels fitted with mechanical means of propulsion is prohibited in this area).

Second Zone: The area from the shore upto 20 fathom line in the sea along the coastline of the State from Kollengode to Edava for a length of 75 Kms. and the area upto 10 fathom line in the sea along the coastline from Paravoor South to Manjeswaram for a length of 512 kms. This is beyond the first zone. (This zone is reserved for operation of canoes and catamarans fitted with mechanical means of propulsion).

Third Zone: The area upto 35 fathom line in the sea along the coastline of the State from Kollengode to Edava for a length of 78 Kms. and the area upto 20 fathom line in the sea along the coastline from Paravoor South to Manjeswaram for a length of 512 Kms.

This is beyond the Second zone (Fishing vessels below 25 GRT are allowed to operate in this zone.)

Fourth Zone: The area beyond the third zone. This zone is for vessels having more than 25 GRT.

(The use of purse-seine, ring-seine, pelagic trawl and mid-water trawl are prohibited within the territorial waters).

* * *

CIFNET TRAINING COURSES—1982-83

The training courses in 1) Boat Building Foremen Course, 2) Shore Mechanics Course, 3) Fishing Gear Technicians Course, 4) Radio Telephone Operators Course, and 5) Teacher Training

Course, organised by Central Institute of Fisheries Nautical & Engineering Training (CIFNET) are scheduled to commence from 1st October, 1982 at Head Quarters, Cochin and Madras Unit of the Institute.

* * *

PRAWN FARMERS' TRAINING CAMP ORGANISED AT NEENDAKARA

MPEDA in association with the Kerala Fisheries Department organised a 5-day intensive training camp on scientific methods of prawn farming at the Fisheries Training Centre, Neendakara. 17 candidates attended the training camp. On the closing day of the training camp, a 'Farmers Day' was organised associating the District Officers of the State Government. Mr. George Solaman, Project Officer, DRDA, Quilon, inaugurated the programme in which Mr. V. M. Abdul Hakim, Deputy Director of Fisheries, Quilon presided. Mr. K. Chandranadan Nair, District Information Officer, Mr. K. Prasadchandran Pillai, Chief Executive Officer, PFDA, Quilon, Mr. A. Antony, President, Neendakara Panchayat, Mr. K. Retnendran, Superintendent of Fisheries FTC, Neendakara and Mr. G. Sathasivan Pillai, Representative from the trainees, gave felicitation talks. Dr. P. U. Varghese, Joint Director (PF) in-charge welcomed the participants and Mr. A. G. Varghese, Farm Manager expressed vote of thanks.

The training camp, first of its kind in Quilon District, was appreciated by all the participants and they requested continuous follow up action by MPEDA to bring in more area under scientific prawn farming in the District.

S. AMBROSE FERNANDO RE-ELCTED AS PRESIDENT FISH EXPORTERS CHAMBER, TUTICORIN

Mr. S. Ambrose Fernando has been re-elected as the President of the Fish Exporters Chamber, Tuticorin, at the 20th Annual General Body Meeting of the Chamber held on the 27th June 1982 at Tuticorin. The meeting also elected Shri A. M. Abdul Cader (of M/s S H M A Cader) as the Vice President.

* * *

TNFDC PLANNING TO IMPORT FISHING VESSELS

The Tamil Nadu Fisheries Development Corporation has recently invited global tenders for the supply of fishing vessels. It is understood that offers from 16 sources have been received and the Corporation is now engaged in making a critical study of the same. The Corporation has constituted an expert committee consisting of Mr. K. M. Joseph, Exploratory Fisheries Project, Mr. Sathia Rajan, Director, Integrated Fisheries Project and a few others to evaluate the various offers and to make recommendations.

As soon as the recommendations are approved, the Corporation proposes to approach the Ministry of Agriculture through the State Government for permission to import the vessels.

It now appears almost certain that the proposal to buy the trawlers of ITC Limited has been dropped by the Corporation.

* * *

INDIGENOUS FISHING VESSELS

It is understood, that on recommendation from the Union Department of Agriculture, the SDFC has sanctioned loans in favour of three parties for the

construction of indigenous trawlers at Chowgule Shipyard, Goa. It is also learnt that three or four similar applications have been submitted to the Union Department of Agriculture for seeking recommendations for grant of loans by the SDFC. These trawlers are proposed to be constructed at N.N. Ship-builders, Bombay. M/s. Mazagon Docks are also actively engaged in the work of securing orders.

* * *

REJECTION OF IMPORT APPLICATIONS

There are indications that the Department of Agriculture has decided to cancel several permissions given to various parties under the 1977 scheme for the import of trawlers. In all these cases, the applicants have either sought a change in the source of import or increase in prices. The rejections, if true, must have been made on the ground that these parties had not taken any interest in the materialisation of their import proposal for a long time. It is however possible that such cases where SDFC has already sanctioned loans, and where there is a request for only change of source of import, the cases may be sympathetically looked into.

* * *

CHARTERS

It is understood that the Screening Committee which considers applications for charters met on 4 August 1982 and recommended several applications. Most of these applications relate to chartering of Taiwanese vessels from Singapore, Hongkong, and U.A.E. fishing companies. The applicants are eagerly looking forward to receiving letters of intent. There has however been a continuing anxiety in this regard and the owners are stated to be threatening to withdraw the offers.

In the wake of the observations made by the Minister for Agriculture at the recently held International Conference on Deep Sea Fishing at New Delhi, fishing companies apprehend that the Government may revert back to the earlier condition that a bank guarantee of Rs. 2 lakh shall be provided for each fishing vessel to be chartered. Should this happen it would cause severe hardship to the applicants and the programme for introduction of deep sea fishing vessels would be delayed further.

* * *

SEMINAR ON RESEARCH AND DEVELOPMENT

The Department of Fisheries, Tamilnadu and T.N. Agricultural University will soon be conducting a seminar on research and development in the field of fisheries. This seminar is likely to attract widespread participation and may lead to the identification of lines of action for re-orienting research and development activities in the field of fisheries with particular reference to Tamilnadu.

RECORD EXPORTS OF MARINE PRODUCTS FROM CALCUTTA PORT

821 tonnes of marine products valued at Rs. 8.49 crores were exported from Calcutta port during July 1982. In July 1981 exports from this port were of the order of 377 tonnes valued at Rs. 2.86 crores. The exports in July 1982 were an all-time high from Calcutta port.

NO EXPORT OF BECHE-DE-MER LESS THAN THREE INCHES

The Ministry of Commerce has issued an order banning export of beche-de-mer of sizes less than 3" with immediate effect.

EXPANSION OF ALLANA COLD STORAGE

M/s. Allana Cold Storage Pvt. Ltd., have been given a letter of intent for expanding their processing facilities at MIDC, Industrial Estate, Thana district, Maharashtra from the present 1000 tonnes capacity to 2000 tonnes.

* * *

PREVENTIVE MEASURES AGAINST CHOLERA CONTAMINATION IN INDIAN SHRIMP

MPEDA has made arrangements to launch a nation-wide campaign to prevent any possible occurrence of cholera in close coordination with the concerned state health authorities. This has been taken in view of the reported cholera incidents in the Thai and Philippine shrimps imported into Japan.

* * *

INDIAN SEA FOOD DELEGATION TO SRI LANKA

A Trade delegation sponsored by the State Trading Corporation of India consisting of representatives of the industry, the STC and the MPEDA left for Colombo on 14 August 1982 to hold talks with the Co-operative Wholesale Establishment (CWE) of Sri Lanka concerning Indian dry fish exports to Sri Lanka. While the STC was represented by Mr. Ranjan Misra and Mr. Krishnamurthy, MPEDA was represented by Mr. M. P. Haran.

* * *

KARNATAKA CORPORATION TO CHARTER TUNA VESSELS

It is understood that the Karnataka Fisheries Corporation has decided to obtain on charter two tuna purse seiners from Philippines for operation. These purse seiners are proposed to be operated from Malpe which is one of the biggest all weather fishing harbours in the country.

TRAINING PROGRAMME IN HANDLING OF SHRIMP AND FISH

The Training course on 'Handling practice of shrimp and fish at processing and pre-processing stages' was conducted at the Central Institute of Fisheries Technology, Cochin from 6-10 September 1982. This course was organised by MPEDA in collaboration with CIFT. The course was attended to by 47 workers drawn from peeling sheds and processing plants of Kerala region.

* * *

CONSULTANCY SERVICES

M/s. E. Norgaard Consulting Engineers ApS, Jaegersborg Alle 16, DK - 2920 Charlottenlund-Copenhagen, Denmark are interested in assisting Indian Entrepreneurs by offering consultancy services for setting up of fishery projects or preparing feasibility reports etc. They welcome contacts from Indian entrepreneurs.

* * *

TAKE TO TUNA: SCIENTISTS ADVISE

Fishery planners should shake off their 'apathy' to the development of tuna fishing in the high seas, a profitable field in which even some non-Indian Ocean countries are planning to enter.

This view has been expressed by two leading fishery scientists of the country, Dr. E. G. Silas and Dr. P. P. Pillai of the Central Marine Fisheries Research Institute, the Indian Council of Agricultural Research (ICAR), who have made a comprehensive study of the resources of tunas and related species in the Indian Ocean.

The average annual catch of tunas, tuna-like fishes and bill fishes in the world in the last

few years has been about 2.14 million tonnes of which the production from the Indian Ocean is estimated at 0.23 million tonnes.

It has been estimated that the exploitable potential yield of tunas and allied fishes from India's exclusive economic zone (EEZ) is 240,000 tonne, against which production in 1979 was hardly 26,600 tonne.

The value of tunas and allied fishes produced commercially in Indian waters in recent years is about Rs. 90 million a year. The tempo is proposed to be accelerated to achieve a production target of 115,000 tonne valued at Rs. 922 million by 1990.

Stating that India is in an advantageous position to exploit tuna resources in the Indian Ocean, the scientists have suggested a coherent national policy combined with initiative from the fishing industry to enable the country to take the plunge.

Indigenous production in the small scale fishery sector through mechanisation and increased efforts has certainly augmented production of coastal species of tunas and tuna like fishes in the last two decades. In Lakshadweep, the production has gone up from 7,800 tonnes in 1961 to 26,000 tonne in 1979. However, the country is still practically in the same stage as in 1961 as far as exploitation of resources from the exclusive economic zone and contiguous high seas are concerned.

A well-established tuna longline fishery exists in the Indian Ocean, which was started by the Japanese in 1952. The late sixties and early seventies saw the entry of fleets from Taiwan and south Korea. The catch of four species of tunas-yellow-fin bigeye,

albacore and southern bluefin from the Indian Ocean alone now stands at 122,000 tonne. Besides, there are other commercially important species distributed in the Indian Ocean, like skipjack tunas and marlins, sword fish, sailfish, and short-bill seafish.

Some of the constraints in the development of tuna fishery in Indian waters are lack of organised fishery for tunas except in Lakshadweep, inadequate

marketing system, and unwillingness to adopt capital intensive operations such as purse seining and longlining.

The scientists say that immediate attention should be paid to the development of small-scale sector to increase production. They have also suggested a crash programme for training personnel on the operational side for the operation of large purse seines and deep long line.

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The scientists have recommended the establishment of an international commission for conservation of Indian Ocean tuna. They are of the view that such a commission could play an important role in designing a coherent policy for Indian Ocean tuna fishery and help in funding and coordinating various programmes for the development of tuna fishery.

* * *

of fish seed, supply of fishery requisites, organisation of fisherwomen's society, development of fisheries in the reservoir, provision of transport facilities for transportation of fish etc. It is hoped that the success of this novel project would pave way for large scale efforts aimed at socio-economic welfare of fisherwomen through the implementation of such projects in other parts of the State.

....AND NOW WOMEN IN AQUACULTURE; FAO PROJECT IN KARNATAKA

With the main objective of promoting small scale Aquaculture for the benefit of economically backward groups of population in developing countries including rural women, FAO has selected Thigalarapalya — a fishing hamlet of Markonahalli village in Tumkur District, Karnataka State to implement a aquaculture project with close involvement of fisherwomen.

During the course of a visit of Dr. T. V. R. Pillai, FAO Project Coordinator, to Karnataka during February 1982, the Thigalarapalya-Markonahalli village was selected, as he was very much impressed by the fishery activities of fisherwomen residing in the vicinity of Markonahalli-Mangala reservoirs. At Markonahalli, the state fisheries department has a fish seed farm and Markonahalli and Mangala reservoir fisheries are being developed by it. The important feature of fishery activities of this area is that the fisherwomen help their husbands in rowing the coracle and operation of gill nets, long lines and cast nets for capture of fish developed in the reservoirs by the state fisheries department. The village, consisting of about 30 fishermen families is intended to be involved in the aquaculture project which envisages creation of infrastructure for production

EFFECTIVE COMMUNICATION LINKS TO ERADICATE POACHING

The officials of India and Sri Lanka have agreed upon the various measures to be taken on eradication of poaching by the fishermen belonging to both countries.

The first thing that was agreed upon was that the fishermen should be educated on the intricacies and implications on poaching in others waters. The boats would fly flags to identify their nationality in this region.

As a result of discussions held between Vice-Admiral M.R. Schunker, Director General, Indian Coast Guard Mr. Sankara Subbiayan, Director of Fisheries, Tamilnadu and others on the Indian side and Rear Admiral A.W.H. Perera, Commander, Srilanka Navy representing Srilanka, it was agreed that the fishermen caught while poaching would be released at the border points with intimation to respective governments.

Wireless and teleprinter communications would be set up between Rameswaram and Talamannar for faster exchange of information on poaching and allied matters.

FOUR THOUSAND HECTARES FOR BWFF

Mr. D.K. Panwar, District Collector, East Godavari Dist, A.P. while speaking on the occasion of the inauguration of short term training course on Brackishwater Fish Farming at Kakinada said that land extending over 4000 hectares along Kakinada coast would be given to fishermen for development of aquaculture.

These lands are at Polekuru. Necessary input would be provided by the government and the land would be provided to the fishermen on lease basis.

According to Dr. R.M. Acharya, Deputy Director General, Indian Council of Agricultural Research, about 140 rural youth in this region have already been given training in the brackishwater fish farming and hoped that they would make use of the training and the infrastructure facilities that would be provided to them.

Dr. S.N. Dwivedi, Director, Central Fisheries Education Mr. H.G. Hingorani, Principal, Central Fisheries Education Training Centre, Hyderabad and Prof. D.V. Reddy, CIFE, Bombay spoke on the occasion.

'MAN AND OCEAN' AT SRI VENKATESWARA UNIVERSITY

The next session of Indian Science Congress will be hosted by Sri Venkateswara University from January 3 to 8, 1983. The topic of the session will be 'Man and Ocean'.

According to Prof. V.S. Ramdas, Convener of the Congress, about 6000 delegates would participate in the sessions and about 40 scientists from abroad have confirmed their participation.

Mrs. Indira Gandhi, Prime Minister of India will inaugurate the Session.

* * *

FOUR FISHERMEN MISSING

Four fishermen of Visakhapatnam were feared to have drowned when their mechanised boat capsized off Rishi Konda.

The mechanised boat belonging to Mr. Jaya Venkata Krishna of Visakhapatnam left for fishing on September 5 with six fishermen aboard.

It was believed that due to rough weather in the sea the boat capsized and a nearby boat could rescue only two fishermen, Pola Satyanarayana and B. Venkateswarlu, while the rest could not be located by the rescuing members of the other boat.

Visakhapatnam Port authorities alerted all the nearby coastal villages and commercial ships to lookout for the survivors. A case has been registered at the 3 Town Police station and the search is still on.

developed aquaculture activities in the world, with extensive areas brought under production. Ecuador has nearly one lakh hectares developed for aquaculture. While the correct figures are not known, Panama also is stated to have an extensive area under aquatic production. Japan and USA are expected to be major importers of cultured shrimp from Ecuador.

* * *

MEXICAN EXPORTS TO JAPAN

Four major Japanese importers have imported around 3000 tonnes of shrimp in 1982. The new shrimp fishing season in Mexico starts in early November.

* * *

TUNA CANNING PLANT AT SINGAPORE

A French company based in Indonesia is understood to have taken up plans on hand to establish a tuna canning factory in Singapore to meet demand in overseas, markets such as Japan and United States. The company is reported to have already acquired four tuna fishing vessels from France.

* * *

DUTCH MARKET FOR CANNED PILCHARD

Exporters who can match Japanese price, quality and packing have good opportunity for exporting canned mackerels to the Dutch market. While third countries have to pay an import duty of 25% and developing countries 19%, there is good demand for canned shrimps also in Dutch market. The present import is about 100,000 cartons per annum from Pakistan, Thailand, Malaysia and India. There is no stipulation regarding quality. The correct name of the product in Dutch and the net weight in grams should be indicated in the labels on cans.

INTERNATIONAL

ATTRACTIVE US SHRIMP MARKET

The US market for shrimp is now attractive. This situation has come about on account of the low inventories and poor landings. The demand is stronger in the case of larger as well as smaller sizes, in shell-on condition. The PUD market is also active.

* * *

HOUSEHOLD SHRIMP CONSUMPTION IN JAPAN

Domestic shrimp consumption in Japan rose to 219 gms. per day in June 1982 registering a 8.9% increase over May 1982 level when it was of the orders of 201 gms.

* * *

CHOLERA LADEN THAI SHRIMP DETAINED IN JAPAN

Import inspection authorities of Japan detected cholera germs in a large consignment of frozen shrimp received recently from Thailand. On account of this, a 17 number delegation visited Thailand to study the matter.

There have been cases of occurrence of cholera germs in

consignments received in Japan from Philippines also. These consignments were stated to be products processed under the direct supervision of Japanese firms.

* * *

MEXICO NATIONALISES SHRIMP INDUSTRY

In a recent order the Government of Mexico has nationalised the operation of all shrimp vessels and shrimp processing plants.

* * *

EXTENSION OF SHELF-LIFE OF FISH

The scientists at the sea plant research unit of University of Rhode Island have come up with the finding that dipping of fish in the enzyme, glucose oxidase, will reduce bacterial attacks on fish. The enzyme also, it is found, reduces and controls drip-loss and assists in the retention of weight.

* * *

PANAMA AND ECUADOR TOP IN AQUACULTURE

It is now known that Panama and Ecuador have the best

REAL 'JAWS'

A 13 year old Japanese girl was reported to have been killed by shark while swimming along with a sailboat in Shimbara Bay, Japan.

The girl was reported to be swimming along with her two brothers behind a sailboat which was manned by her father. All of a sudden she was pulled in and when she reappeared on the surface she was found with her stomach deeply bitten. When lifted into the boat she was dead already. Though the killer was not seen, it was assumed that the girl might have died of shark bite. The teeth marks measuring 2.5 cm and a 30 cm gouged out portion of the body confirmed the fears that the killer must be a shark.

In this area, there was another death during 1967 when a 19 year old boy died with similar attack.

* * *

HOLLAND BUYS DANISH SEARANCH KNOW-HOW

The Danish company, Musholm Lax ApS, Askvad near Jyderup on Sealand has won a unique development contract in Holland. Musholm is to supply the Dutch organization Stewzalm with a complete sea-ranch, including know-how about how to run it. The first fish was put out in Dutch waters in April this year.

Stewzalm is a public sponsored organisation that employs jobless young people, explains project manager Mr. Ronald van Dokkum in his Amsterdam office. Stewzalm plans to produce 35 tons of Steelheads (seareared Rainbow Trout, latin: *Salmo irideus*) in 1982 from 8.4 tons of fry, thus employing seven people.

The Dutch sea-ranch is located at Waddensee inside the island of Texel on the North Sea coast. The area is flat, with strong winds, heavy seas and strong currents. The cages which are light

in weight are set in 5-6 m water depth and are very suitable for the harsh environment. Two Danish sea-ranches, at Musholm and at Kyholm, suffered no damage in the hurricane that felled 10 per cent of the Danish woods on 25th November 1981. Wave heights of 4 meters and a current of 4 knots were measured at Kyholm. The Kyholm sea-ranch also employs the Ellips-Marin cage system manufactured by Musholm Lax ApS.

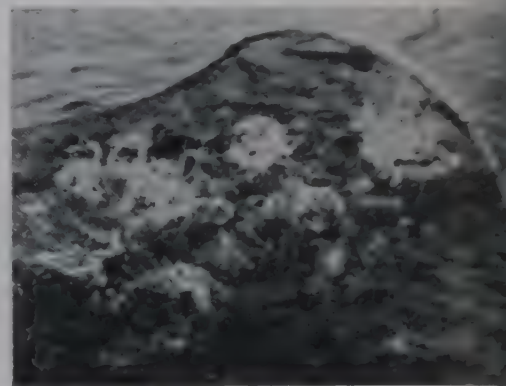
Micro organisms floating in the water attach themselves easily to the cage nets of any sea-ranch system. In tropic climates the growth is fast and soon the fouling will stop the water flow through the cages and the fish will suffocate. The unique Ellips-Marin cages-system is like a long tube, with about 60 cm of the diameter of the tube showing above the water surface. The cages are laid down floating along bridges made from ordinary wooden poles and suspended in the water by a swivel mounting in both ends of the cage. The light bridge structure provides a walk-way for inspection, feeding and turning of the cages.



MANAGER MR. KURT MALMBAK-KJELDSSEN, MUSHOLM LAX ApS, CHECKS ON FOULING AT MUSHOLM SEARANCH

The cages system is the result of careful study, explains Mr. Kurt Malmbak-Kjeldsen, Musholm Lax ApS. In Denmark we

have 60 cm of the diameter exposed to the sun and wind. Every three days we turn a new part of the cage meshing up into the air. The sun and wind soon dry out the fouling on the meshes and the growth simply falls off. No change of nets are necessary. The cages stay in the water and the whole operation is performed by only one man.



STEELHEADS, SALMO IRIDEUS, AT THE MUSHOLM SEARANCH. IN THIS POSITION FOULING WILL BE DRIED OFF BY WIND AND SUN AS THE NET IS TURNED

The sea ranch contract for Stewzalm includes delivery of 14 cages each of 8 meters length and 4 meters in diameter, capable of holding 2 tons of fish each. The contract also calls for delivery of know-how in a unique 10-stage package, including a one week training programme in Denmark of the Dutch farm manager, two visits by Danish consultants and a training programme on feed diet and feeding, disease treatment, sorting and handling, supported by slide shows.

Says Kurt Malmbak-Kjeldsen, we have already received many enquiries from many parts of the World. Some potential customers are big oil companies and big food conglomerates, but the strongest response comes from developing countries. Sea-ranching offers employment and very high value-added production per man-hour invested.

The Ellips-Marin cages are suitable not only for Salmon, but also for polynemids, groupers, ekti, milk fish, mullets and many popular marine or estuarine species. The ranching system is equally adaptable to fresh and brackishwaters.

* * *

INDIAN SCIENTIST DISCOVERS NEW BIOMASS

Dr. D. V. Subbarao, an Indian marine biologist working in the Bedford Institute of Oceanography in Canada has discovered a new biomass in the seas of Costa Rica, Mexico and Arctic ocean.

The organisms called 'picoplankton' are less than a thousandth of a millimeter and live by photosynthesis.

According to Dr. Subbarao, who cultured the organisms in the laboratory, they constituted 1% of the total biomass in the ocean and they were not visible to the naked eye. They could be seen only through a technique called 'fluorescence' in which ultraviolet rays are used to excite the organisms.

Picoplankton consists of the smallest food organisms known to the nutrition of fish in the oceans. Hitherto it was flagellates and picoplankton is one fifth of the size of flagellates.

With this discovery there could be several new theories on fish nutrition in the oceans and it has added a new dimension in the fish biology.

Dr. Subbarao was a graduate of Andhra University, Andhra Pradesh. He joined BIO ten years

* * *

HOLLAND IS ECC'S HEAVIEST CONSUMER OF IMPORTED SHRIMPS

According to a survey conducted by the Pierre Nottlet & Co. of

Belgium, Holland accounts for the heaviest consumption of imported shrimp among the European Economic Community countries. Holland's per capita consumption of imported shrimp is 616 gms while France accounts for 375 gms. United Kingdom consumes 325 gms. while the countries like Germany, Italy and Ireland have a per capital average of 93 gms.

However each country has its own habits in preferring various types of shrimp. France prefers whole shrimp while United Kingdom goes for costly whites and some cheaper species. Belgium and Holland go for cheap varieties consisting of shrimp tails and species from inland waters.

The whole of Europe prefers peeled shrimp that comes from Malaysia, India and Thailand. Italy prefers small sized shrimp tails with shell mainly white and pink.

* * *

US TUNAMEN IN TROUBLE

Low prices offered by the foreign vessels to US tuna processors and packers have hit the American tuna production sector severely.

Since their own operations ran into high expenses the prices quoted by American units were relatively high. Hence the resistance from the buyers of products from United States. Many owners in United States claim that the profit margin is becoming intolerably narrow. The packing company, Bumble Bee at San Deigo, has already closed down while Van Camp Sea Food Company has laid down its 400 employees and is now on a go slow process.

* * *

GERMANY, ITALY AND FRANCE ARE STRICT IMPORTERS AMONG EEC

The quality control measures in France and Germany and Italy are supposed to be the strictest

among the importing nations of the European Economic Community countries.

Like Food and Drug Administration of United States, these nations impose very strict quality control measures to safeguard the product quality. Regular laboratory checks are conducted on the imports of fish and shrimp. (Belgium, Luxemburg and Holland are supposed to be a little slack in these quality control measures.

The European Economic Commission is now studying possible ways to make the quality control common to all its member countries.

* * *

JAILED THAIS STILL UNBAILED

Thais often run into troubles when they go fishing in other's waters. Several countries have jailed Thai fishermen who have intruded into their exclusive economic zones.

For instance, Malaysia has recently sentenced 47 Thai fishermen to ten months imprisonment.

Four Thai fishermen were hurt very badly when they were gunned by a patrol boat of Indonesia. Their boat was seized with all 27 crew members.

The Bangla Desh government, however, has agreed to free 129 Thai fishermen. The Government of Thailand has decided to take them home and collect air transport fares from the employers of those arrested fishermen.

* * *

PRODUCT DIVERSIFICATION IN PHILIPPINES

The Philippines Development Corporation has received substantial aid for the implementation of its proposals to produce 300 tons of smoked fish for export, 575

tons of fish sausage of which 70 percent would go for home market and 180 tons of fish completely for home consumption. The aid was given by the Philippines board of Investments.

The aid is of the order of 1.0 million US dollars. Another half a million dollars would be provided by a Japanese firm. All the smoked fish would be exported to Japan.

The investment Board has also granted aid to Jones Sea Food Supply of Quezon city to produce 600 tons of fish cakes. This firm plans to export all the products to Japan.

INDONESIA TO BUILD ITS LARGEST FISHING HARBOUR

At a cost of 15.6 million US dollars the Government of Indonesia has decided to build its largest ever fishing harbour in northern Jakarta.

The harbour construction would be assisted by a Japanese company. An ice plant with a 150 ton capacity would be set up inside the complex. The harbour is expected to be ready by June 1984.

For traditional fishermen the Government of Indonesia has planned to construct 24 smaller harbours at various coastal landing centres.

SUCCESS IN SRI LANKA CONTINUES

First quarter of 1982 saw a remarkable rise in the catch of fish in Sri Lanka. The production rose to 51,750 tons in 1982 compared to 47,186 tons during the same period in 1981.

Major portion came from coastal waters with a production of 42,500 tons. Deep sea fisheries contributed 550 tons while inland fisheries contributed 8,700 tons.

Longlining and trawling is favoured in deep sea operations. Government of Sri Lanka is demonstrating its advantages with the aid of the vessel, Samudra Maru.

There has been a steady rise in the output in Sri Lanka since 1975.

THAILAND'S MACKEREL CONSERVATION EFFORT

In order to conserve the mackerel and stop rapid depletion of its stocks, Thailand's Ministry of Agriculture and Cooperatives is trying to stop fishing for mackerel in the Gulf of Thailand. Help was sought from the fishermen to observe the conservation of mackerel by stopping fishing operations during the breeding season i.e. from January to March and from mid April to the end of June, which is its feeding season.

During 1980 the mackerel production figured about 100,000 tons out of total fish catch of 1,791,000 tons.

Total catch fell to 1.65 million tons during 1981.

MR. FISH AND HIS COOLING MACHINE

Mr. Nick Farren, who came into prominence with his dynamic marketing techniques in selling fish has added another laurel to his lapel. The new mobile refrigerated van powered by solar energy is expected to revolutionise the very concept of transporting fish to interior areas. The absence of this facility is felt in many developing nations.

The refrigeration of the mobile vans created by the concern of Mr. Nick Farren of Trader Trailers gets power from the solar panels attached to the rooms of the vans. This method has proved to be very cheap and would soon make it

possible to carry the fish to hinterland with lesser investment and increase the availability of fish.

In fact, when Mr. Farren began his drive in fish sales by mobile shops a report published by the British Government estimated that Farren's method would boost fish sales in that country to £ 20 million. He was aptly named as Mr. Fish by his admirers.

His solar cooled vans would be a great help to developing nations where the transportation of fish to interiors has been a heavy investment task.

WORLD CATCH BOOMS: THREE NATIONS BREAK RECORDS

There is a rise of two percent in the catch recorded all over the world, according to the figures compiled by the Food and Agriculture Organisation.

It was noticed that the catch figure rose from 72.4 million tonnes of 1980 to 73.7 million tonnes in 1981. Value wise the world fish products amounted to 15.5 billion US dollars in 1981 from that of 15 billion US dollars in 1980.

Japan, USSR and China are the world's leading nations in fish production and it is reported that catch in these countries during 1981 was astounding. Japan's production during 1981 was 11,336 million tonnes. Chile rose to fourth position with a production of 3,393 million tonnes.

Last year India has achieved a production growth rate of 8.3 percent, the production being 2.64 million tonnes.

Despite fishing problems Europe too has achieved an improvement from 4.997 million to 5.106 million tonnes during 1981.

STAR FISH

Here is an estimation of what Stars say about fortunes of fishery industrialists, managers and operators for the period of Sept. 15 to Oct. 14, 1982. Believe it or not.

ARIES (Sept. 15 to Oct. 14)

There will be serious hurdles in the early part of the period. However, there can be opportunities to get certain financial benefits from employers. There is likelihood of health problems. Financial benefits may accrue around 20 Sept. However, complications in your affairs may set in shortly after this. Dealings with government officials may become very difficult. Towards the end of September quarrels with friends are likely. Money troubles may arise in the first week of October. There is a likelihood of favourable developments around 11 Oct. Fishing is likely to be good around 17 Sept. and around 12 Oct.

TAURUS (Oct. 15 to Nov. 14)

You will have opportunities to know the motives of certain persons on 20 and 21 Sept. You are likely to have favourable financial deals shortly after this. Your job matters are high-lighted during the period. There is a likelihood of important trips in the fourth week of Sept. Your work will be appreciated by authorities concerned and you will work with energy from October onwards. 7 Oct. may bring you good news. However, you will have considerable difficulties to making your bosses understand your point of view. However, you would ultimately succeed. Good fishing can be

anticipated around 20 Sept. and around 15 Oct.

GEMINI (Nov. 15 to Dec. 14)

There is an accent on domestic matters in early part of the period. Travel is indicated around 27 Sept. Guard against misunderstandings which are likely to arise around these dates. In the 1st week of Oct. you may find success in certain creative projects. You will be able to sway the persons concerned to come to your point of view. There will be very good developments in the second week of Oct. which will put you in a relaxed mood. There are possibilities of good fishing in the first week of October.

CANCER (Dec. 15 to Jan. 14)

You will be at your persuasive best in the early part of the period. However, the realisation of your plans may be delayed. Fourth week of Sept. is good for investment. You can expect considerable changes that are favourable in your working environment. There will be cooperation coming forth from your colleagues. Be careful about your financial matters. If some one incites you with some thoughtless comments, it is imperative to keep cool and not react drastically. There can be up-setting situations in the 1st week of Oct. 12 Oct. may prove to be a good day for moving towards your objective. You have to learn to evaluate rumours carefully. There can be good fishing around 18 Sept. and 15 Oct.

LEO (Jan. 15 to Feb. 14)

Early part of the period is likely to be adverse to your interests. Be careful about any money making proposals that may be suggested to you. Be judiciously aggressive in

your dealings with your opponents. 1st week of Oct. is favourable for business transactions. Some money problems will arise around 13 Oct. Something special is going to happen to you in the second week of Oct. Good fishing is also indicated in this period.

VIRGO (Feb. 15 to Mar. 14)

This is a period for initiating a new career, and to take sound decisions. Improvement in finance is also indicated during the period, although some obstacles may take place. It is necessary to keep your emotions under your control, during the period. 24 and 25 Sept. are favourable days regarding money matters. As you enter October you will become more self-confident and career prospects will be brighter. Around 11 Oct. you may realise your job objective. The period is generally good for finance. Fishing is likely to be good around 27 Sept.

LIBRA (Mar. 15 to Apr. 14)

You will get an indication of happenings in the background in the early part of the period and you will have the advantage of this and move forward. Surprising turn in events can be anticipated around 22 Sept. From 24 Sept. you will have a good period. Some good luck is indicated in the first week of Oct. It is better to clear your pending obligations on 14 of Oct. You will have some difficulty in concentrating on your business matters in the second week of October. Fishing results are likely to be encouraging around 8 Oct.

SCORPIO (Apr. 15 to May 14)

A financial scheme which you have in mind may not work as anticipated. However, towards the

QUIZ ANSWERS:

1-c; 2-a; 3-b; 4-c; 5-a; 6-b; 7-a; 8-b; 9-b; 10-c; 11-b; 12-a; 13-b; 14-c; 15-c.

end of September a speculative move on your part may result in a limited success. Career support may be forthcoming from a influential person. You have to be careful about spending during the period. 29 Sept. can be a day of considerable achievement. There are chances of some cooperative action commencing from 6 or 7 Oct. for your benefit. Avoid separation from a close associate till the cooperation matures. Arguments and confrontation have also to be avoided. By 11 Sept. you will be free from all frictions. Thereafter there will be considerable improvement in your affairs. There can be good fishing around 29 Sept.

SAGITTARIUS (May 15 to June 14)

You will be in a state of confusion and worry concerning your career matters in the third week of Sept. It is desirable that you investigate into the causes for it and take appropriate action. Unfinished work will also worry you during the period. By 26 Sept. the conditions will improve. Still the end of Sept. will see you facing several confusing matters. In

the first fortnight of Oct. the situation will improve considerably. This is a period during which you have to be careful. Fishing results are not likely to be as expected.

CAPRICORN (June 15 to July 14)

Early part of third week of Sept. may offer opportunities to improve your career and finances. Travel is also indicated. You may enter into a confidential agreement around 22 Sept. There will be some developments which you would come to know well in time.

Utilising this information you will be able to manage and achieve your objects. End of Sept. may bring in some luck and reward. Around 7 Oct. you will have opportunities to show your abilities. You may also be able to get an encouraging assignment. There can be some problems or irritations which should be properly taken care of. After 10 Oct. career ventures may pick up speed. Fishing can be encouraging during the period.

AQUARIUS (July 15 to Aug. 14)

Do not become a victim to a seemingly attractive financial

scheme put forth by your friends. Luck and reward is possible around 20 Sept. Travel plans during the period may abort. 30 Sept. may bring in business rewards. You are likely to be in an optimistic mood in the 1st week of Oct., but this will wane in the second week of Oct. There can be many problems around 13 Oct. Average fishing results are indicated during the period.

PISCES (Aug. 15 to Sept. 14)

Indecision on the part of your partners may cause some frustration to you, especially around 19 Sept. There can be good developments around 22 Sept. Financial results are likely to be encouraging around 23 Sept. You will be able to mobilise the support financial resources for the achievement of your objectives. There may develop up-setting events in the 1st week of Oct. Avoid impulsive decisions during the period as your judgment can be faulty. An investment project may take shape in the middle of October. Fishing results are likely to be encouraging around 19 Sept.

CONRAD BIRKHOFF

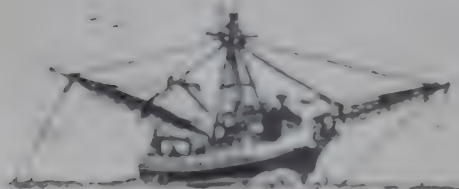
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Fishing Chimes

Deep's of
Indian Deep Sea
Fishing

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Fishing Chimes

19 October 1982
Vol. 2
No. 7

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Letters to the Editor

Dear Sir,

You might be aware of that MPEDA is trying to implement the Modified system of Inprocess Quality Control (MIPQC) in fish processing plants all over India and giving subsidies to the order of Rs. 30,000/- to those who adopt this MIPQC system. The intention before the implementation of MIPQC is a very highly appreciable one but we, as technologists in these units, try to put the limitations and demerits of MIPQC through your esteemed magazine so that opinions of experts in the field may be mobilised with reference to it.

From the registers and documents of MIPQC plants, one can see that there has been hardly any rejection of either raw material or finished products since years. If at all any, the rejections might not exceed 0.1% of total material either received or exported, which in turn is nothing but to satisfy the formalities and nothing else. In that case, these technologists in MIPQC plants are in no way better than rubber stamps for the processors and bowing to each and every fancy and whim of their superiors in each and every aspect. But the problem cannot be solved by the end product inspection system by Export Inspection Council also. Eventhough the officers of EIA claim that they are quiet competent and free from obligations of the processors, truly speaking, not even a fraction of them are free from obligations of the processor. They are easily satisfied by petty favours and things offered by processors in exchange for the commodities they pass as "sound".

With these, when a processor adopts for the MIPQC, instead of producing quality and wholesome goods, he is likely to forget the whole concept of quality and the words-inspection & quality-have already lost their relevance and have become nobody's business now. Processors build laboratories, bag the Rs. 30,000/- as subsidy and soon start exporting what all they want to export in what so ever manner they want and finally forget over the quality and wholesomeness of their own product.

With reference to above, we as technologists would like to suggest the following:-

1) The technologists must be licenced and they shall be the persons who are responsible for quality control in that particular unit. This method of legalising a technologist will prevent himself from bowing to the multi-faced fancies of his superiors in each and every aspect. Of course, this is not new but is seen in the fields of pharmaceutical, protein foods engineering and textiles etc.

2) If the above method of licencing is considered to be drastic, atleast the bacteriological and analytical results sheets duly signed by the technologists should reach the particular Export Inspection Agency before they issue the certificates of export worthiness.

3) Instead of having hundreds and thousands of these laboratories all over India, MPEDA should give the sanctions to those whose past records are clear, who have their own ice plants, vehicles, processing facilities and other infrastructure, thereby preventing a loss of Rs. 30,000/- on laboratory.

4) Registers of an MIPQC plant should be checked up atleast once in every month.

In case the above are implemented but all the processors are granted MIPQC permission, the results would be quite drastic. The seafood industry which is still infant and whose reputation is being built by ourselves will be lost by ourselves within no time. Instead of bringing in good as stated in the executive instructions of MIPQC, it will definitely harm and mar our image in foreign markets. Hence before forcibly imposing MIPQC on everybody irrespective of whether one can afford for it or willing for it and before it becomes a great blunder and also a hurdle in our seafood export trade, the authorities as well as entrepreneurs must open their eyes to the above said facts and do the needful.

We believe in the freedom of press and hence we hope that you publish this article in your esteemed magazine so that opinion of those concerned can be mobilised with reference to this.

Thanking you,

TECHNOLOGISTS
State of Kerala.

* * *

Dear Sir,

Kindly refer your esteemed issue of Fishing Chimes of August 1982 in which I was introduced to your readers under the caption 'Introducing Personalities'. I would like to say that while I travelled in the concerning zone extensively I did not come across any knowledge or any belief about the practice of cutting away heads nowadays in the zone. It is misconceived that 'The practice is still believed to be existing in the Barak River drainages zone'.

A corrigendum may kindly be published in the next issue.

S. Nath
Gauhati

Depths of Indian Deep Sea Fishing

It would all seem mysterious. Indian press, with sudden flush of interest, has turned its search light on the deep sea fishing industry. A profusion of articles on the subject has appeared in various journals in recent months.

A write-up appeared in Eastern Economist on 11 July 1982 under the caption 'Deep Sea Fishing: Is it profitable?', followed by many others, one in India Today (1st July 1982), entitled 'Trawlers in deep-sea', and in Business World (16-29 August 1982) with the catchy caption 'Indian Fishing in deep-waters'. August 1982 issue of Science Today' also carried the viewpoint of Dr. S.V. Gokhale on the subject with the title 'The India called deep-sea fishing'. There may have been many more but we have not had the opportunity of reaching them.

STERN ECONOMIST'S

The author of the article in Stern Economist believes that the main reason for the flight of business from deep sea fishing is inadequate profitability, owing to rising diesel costs. The article argues that, since the larger companies are not in a position to undertake the job with favourable profits, it would be reasonable to licence foreign trawlers to operate in our waters. He feels

that foreign trawlers must be having sizeable profits, otherwise they would not come all the way to poach often in our waters. He is against the granting of additional subsidies to make deep sea fishing operations viable for Indian enterprises.

While expressing views on the above lines, the author continues to say that deep sea fishing, on account of the huge capital costs, is certainly the game of big business. The firm stand against big business taken by the government and its proclivity to promote state undertakings in deep sea fishing business, the author feels, will only further complicate the matter. Emphasis has been laid on the fact that EID Parry, ITC, Britannia and New India withdrew from the field, leaving only a few large houses in the arena. Pointing out the delays in clearance of the charter applications, he has emphasised the point of view expressed by the Association of Indian Fishery Industries that a time-bound programme for acceptance or

rejection of the applications should be introduced. He has also emphasised the need to provide basic infrastructural facility for the development of marine fisheries.

WHAT 'INDIA TODAY' SAYS

The article published in 'India Today' written by Dilip Bob also points out the progressive withdrawal of the larger houses from the deep-sea fishing field. Bringing out the several depressing features in the present state of Indian deep sea fishing industry, the article says that there should be a national fisheries policy, a separate ministry for fisheries, a clear-cut system of permitting charters and joint ventures, provision of adequate facilities such as communications, deepening of existing fishing harbours and the establishment of fisheries corporations for deep sea fishing sector.

BUSINESS WORLD'S OBSERVATIONS

The write-up entitled 'Indian fishing in deep-waters' by Sita Unnainair in Business World (16-29 Aug. 1982) is comprehensive, although observations therein are heavily loaded in favour of larger houses. Striking a note of alarm and panic that larger houses are progressively pulling out of deep sea fishing industry and pointing out that larger houses alone can undertake deep sea fishing, the article concludes that few small scale Indian entrepreneurs have that much money to throw it into the air and the government continues to think that big is ugly. It is mentioned that, until the government decides to do some rethinking on this basic point the Indian deep sea fishing is likely to get into even more deeper waters.

While subscribing to the view that the flight of big business from the deep sea fishing industry is on account of inadequate profitability, the article in Eastern Economist says that the tough stand of the government against big business and the intention to promote state undertakings in deep sea fishing business would further complicate matters. The author is against subsidising the Industry, and in the face of inadequate profitability, big business houses would not like to continue in an unprofitable field. Yet we find so much of anxiety on the part of certain larger houses, to gain a dominant place in the industry. There must be a good reason for this. In this situation what options does the government have? Either they have to beg the big business on bended knees to continue in the field (since they alone have the money to throw into the air, as Seetha Unninayar says) or to encourage state undertakings to enter the field in a big way. Government, obviously, as at present, have no intention of prevailing upon big business to continue in the field. The Minister has therefore stated that he would encourage state undertakings. One has to see whether government will be influenced to reorient their policies heavily in favour of larger houses.

NOT THE GAME OF BIG BUSINESS

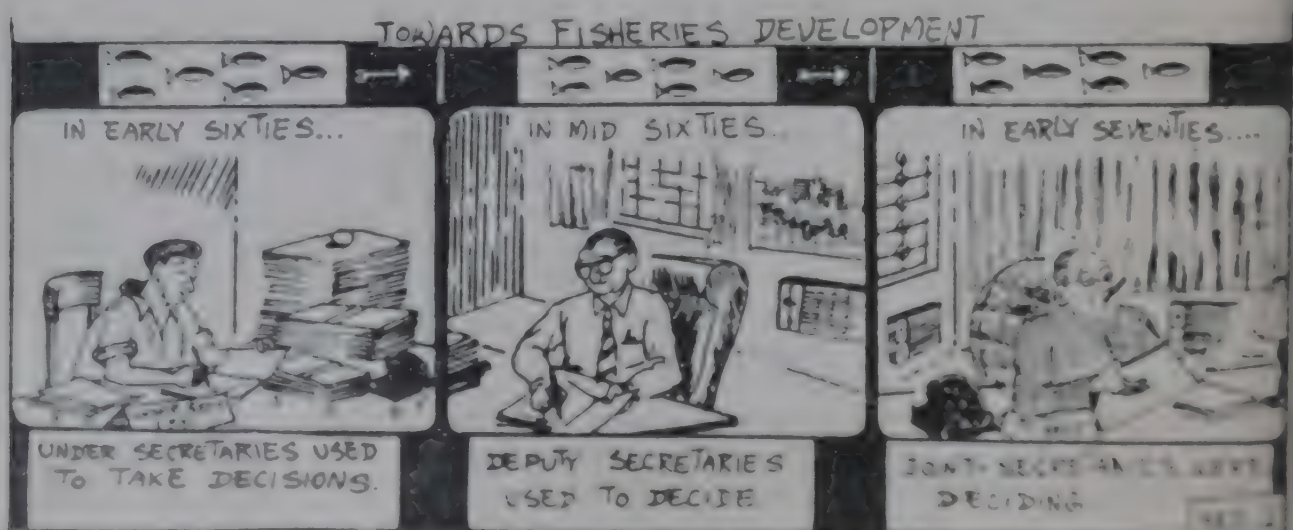
The article in Eastern Economist states that even a moderate sized trawler, such as used for shrimps, costs nearly Rs. 2 crores. This is not correct. For about Rs. 82 lakhs a well-equipped 23 m trawler can be acquired. Mazagon Dock Ltd., Bombay is willing to supply them at Rs. 57 lakhs. It is argued that, on account of heavy capital investments, deep sea fishing is the game of big business. This is certainly not true. With availability of loan to the extent of 90% of the cost of imported and 95% of cost of indigenous vessels, the actual investment per vessel will be within Rs. 10 lakhs and for introducing a viable fleet of two trawlers, a small/medium level entrepreneur would require a capital investment of Rs. 20 lakhs. There are many in the country, other than big business, who can invest this much. In fact there are several small/medium operators who have invested this much and are in the business. Further, through chartering of deep sea fishing vessels and later investing the incomes earned through their operation they can secure loans from SDFC and acquire fishing vessels. It is certainly not correct to think that only big business

can be in it. The business is within the scope of small/medium enterprises.

All the three authors are perturbed over the progressive withdrawal of larger houses from the deep deep sea fishing field. We feel that the industry very well be developed, without the participation of larger houses. In fact, it is they who have made a mess of the whole field. While themselves not succeeding they prevented small/medium entrepreneurs to develop.

ARE LARGE HOUSES THAT COMPETENT?

Seetha Unninayar's article is totally critical about the government's role in the development of deep sea fishing. She says the observations by Rao Birendra Singh, Minister for Agriculture which she thinks are paranoid, stem from the progressive exit of larger houses from the fishing industry. This feeling, it appears far from truth. Government is aware that they need not have to depend on larger houses for the development of the industry. She feels that, despite the widespread awareness that deep sea fishing is a capital intensive and high risk business, government is keeping the organised



entrants into the industry
at lease. Although they
capital and management
y, they are viewed with
Soft loans from
e denied to them.

Authors are not aware that
unprofitability nor
of incentives nor
ement are responsible
withdrawal. Union Carbide
et of 14 vessels. How
y come to own the biggest
leet in India? Has not
rnnment allowed them
uch a large fleet?
they want the government
allow the acquisition of
sels? As it is they are
their vessels on loss. Do
at the government to
re an enterprise, which has
able to manage the
vessels in a profitable
with all their managerial
ce?

AS GOOD TOWARDS R HOUSES

ment permitted New
heries to charter two
vessels and also permitted
er to acquire the vessels.
company is pulling out
ld, it is only because of
ernal problem and not

certainly because of government
policies.

Britannia has been doing well
in their fishing operations. They
have not pulled out of this sector
so far, as has been stated.
Government permitted Tata Oil
Mills to import two trawlers from
Mexico and also acquire two
Thai trawlers through charter.
Government also permitted them
earlier to operate on charter
25 vessels from a Thai Company.
It is likely that government
would soon clear an application
of theirs or their subsidiary
for chartering fishing vessels from
abroad. Is all this not an
encouragement?

Konkan fisheries have not come
out with any statement that
they are pulling out. Government
have not come in the way of
their programme in any manner.
If E.I.D. Parry pulled out earlier, it
was owing to other reasons.
Their vessels were being run on
profit at the time they pulled out.

The word that went round at
the time was that ITC pulled out
of the field for the reason that
their perspective study had shown
that, in the coming years, the
exports of marine products
would be diminishingly attractive.

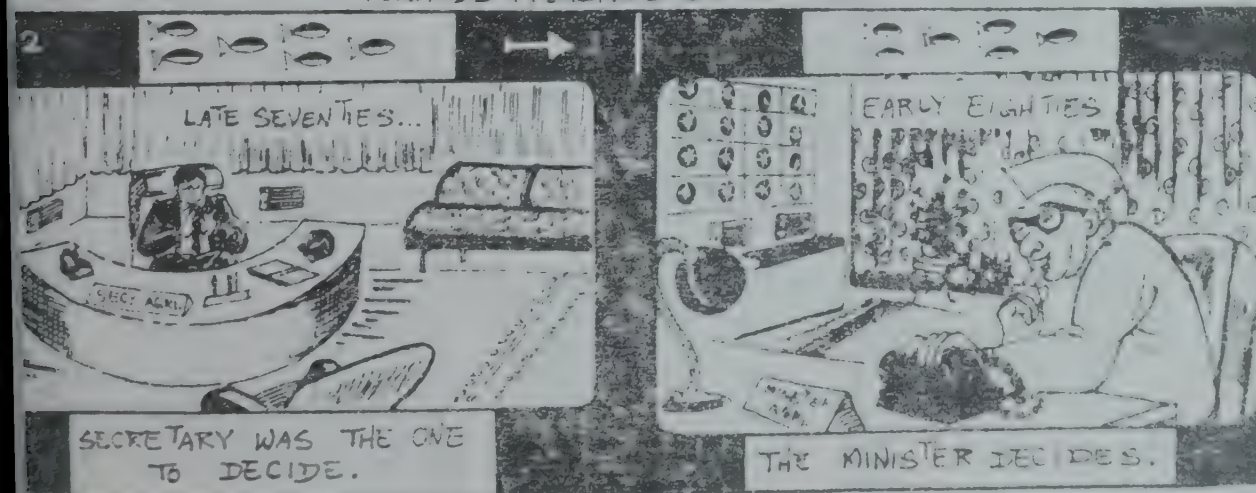
One complaint that the larger
houses can have against the
government is that they are not
being given loans from SDFC.
Government have no where stated
that granting of loans from
SDFC to larger houses is barred.
The Ministry of Agriculture has
not been recommending their
applications for reasons of
their own. One reason can be that
the smaller parties with lesser
financial resources should get
preference.

Another complaint of larger
houses can be that companies such
as Union Carbide and Chowgules
were not given subsidies on the
vessels constructed by them
indigenously. There was
provision for the granting of
subsidy of 27½% of the cost of
vessels or the difference between
the cost of vessels and
equivalent imported vessels
whichever was lower. Enquiries
show that the shipyards failed
to provide satisfactory proof of
expenditure incurred by them
for the construction, to enable
government to release the subsidies.

NO DEEP SEA FISHING WITHOUT LARGER HOUSES?

Seetha Unninayar observes that,
because the organised sector
companies have been kept out of

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the industry, the country possesses neither suitable vessels nor the experience to undertake such extensive and ambitious operations. In other words, she means that, if the organised sector companies are encouraged with SDFC loans, permission to sell non-portable catches within the country and providing other such incentives, they would have developed or utilised their expertise and undertaken extensive and ambitious operations. According to her own statement larger houses that expanded their operations on shrimp, which fetches the highest returns, have been pulling out, on account of non-profitability. Such being the case, is it conceivable to believe that larger houses would invest heavily on diversified fishing operations, which bring far less returns, even if they are allowed to do so? Several larger houses could not continue with success even in shrimp trawling operations. They could not develop the managerial expertise. In such a position, it is doubtful that they can undertake extensive and ambitious operations. As per our assessment that most of the larger houses would not like to continue in the field, even when the government encourages them. As possible they have other obscure intentions in unleashing extensive publicity about injustice to smaller houses.

IF WITHIN SCOPE OF SMALL ENTREPRENEURS

At the present sound and fury exhibited by larger house seems to embarrass the government rather to get permissions to charter fishing vessels or pull out the industry honourably on the ground that government is against their presence in the industry. If the charter operations are successful, they may buy the stipulated number of vessels. Then the smaller parties

can also do the same. Smaller parties can probably manage their operations in a far better style than larger houses and in a far more economical manner as the present trend shows. Preference in charters and other incentives has therefore to go to smaller companies not only from the above angle, but also from the angle of securing economic justice to those lagging behind. The present trend of publicity in favour of larger houses seems to suggest that only larger houses should be encouraged as they alone can deliver the goods. Human beings other than those in larger houses too are endowed by Almighty with resourcefulness, intelligence and wisdom. The present policy of Government in regard to charters will be a major incentive to small parties to gain experience, build up reserves and acquire their own fleets. Small parties in the fisheries field will have only this line to concentrate. Larger houses have many. It is better they concentrate on other 'sure-fire' sectors and leave the 'Capital intensive' and 'high-risk' field to small and medium sectors, instead of using their might in prevailing upon the government to virtually allocate the sector to them exclusively. The small men have also to live and flourish. Larger houses need not be so altruistic as to opt to enter a high risk field.

Seetha Unninayar quotes N. P. Singh as saying 'I don't see any sense in adding to the shrimp trawler fleet by about 50% when the catches are falling'. There is positive proof that shrimp catches are not falling but are on the increase. The opposition to addition to shrimp fleet is obviously to preclude new entrants into the field to share the benefits. Singh says, probably with contempt, 'Small companies and fresh entrants lured by the prospect of

obtaining cheap capital, thanks to SDFC loan facility, have been allowed in'. We leave it to the readers to judge the import of this. Does this give an inkling of the overbearing and haughty attitude of large houses towards small companies? Does this mean that they do not want small companies to be in the deep sea fishing industry? We are unable to fathom.

DSF NOT A MANIA

Dr. Gokhale in his note entitled 'The mania called deep sea fishing' published in the August 1982 issue of 'Science Today' has questioned the government's efforts to promote deep sea fishing at the cost of traditional and inshore fishing. He is of the view that the deep sea is not so rich as inshore waters. He feels that, given the necessary infrastructure facilities like transport and marketing, our fishermen can double the fish catch. He says that, while deep sea fishing will help only a handful of persons and some foreign companies, inshore fisheries can benefit a large population.

Everyone agrees that deep sea zone is not as rich as inshore waters. At the same time, it has to be conceded that deep sea zone contains a sizeable fishery, the density being less. This resource is also a national asset and has to be exploited for national benefit. It is not correct to say that the exploitation of these resources will benefit a few persons and some foreign companies. The correct thing to say perhaps is that this activity should benefit the largest possible number of enterprises. While the units may be few, the number of persons dependant on the units will be large. Regarding inshore fisheries, there can be a positive suggestion that fishermen should be helped further to augment the catches.

REPORT

TIME BOUND CLEARANCES DIFFICULT, SAYS JAKHANWAL

This cannot however be achieved merely with the provision of infrastructural facilities. The number of fishing units has to be increased. The coastal states have been continuously on this job. At some stage, however, this activity has to come to a halt, for, there are limitations on inshore resources. It is extremely doubtful that we can double our catches from inshore resources, whatever be the extent of our effort. Scope for augmenting the catches, whatever be the addition, lies in going farther out towards deeper waters. It is an anachronistic idea, not related to the law of the situation, to advocate that there should be no deep sea fishing and we should concentrate on inshore fishing only. It may be true that 67% of estimated additional yield will come from inshore areas and only 33% from deep sea. We can aim at exploiting both, without any conflict and without jeopardising the interests of traditional fishermen.

At the present stage of our knowledge of deep sea fishery resources, it will be unwise to place undue reliance on the estimates arrived at either by NCA or Visvesvaraya Industrial Research and Development Centre. The only sure way to know the extent of resources is to deploy a large number of vessels and see the results. If there are losses they have to be borne. If there are enterprises ready to take the risks, they have to be encouraged. If they make money, the industry will develop. If they lose, no one from commercial sector will think of deep sea fishing. If government wants the presence of a national fishing fleet in the zone for reasons of maintaining our sovereignty, it has to then think of the steps necessary. It is too premature to say that only inshore

Contd on P. 23.

Mr. S. P. Jakhanwal, Joint Secretary (Fisheries) and Mr. S. K. Das Assistant Commissioner of Fisheries of the Union Department of Agriculture, held a dialogue with the representatives of the deep sea fishing industry at Visakhapatnam on 16 September 1982. The representatives from a large number of deep sea fishing enterprises attended the meeting.

In his introductory remarks Mr. Jakhanwal said that it was proposed to hold quarterly dialogues between the Department of Agriculture and the industry in order to remove the communication gap. Pointing out that the present meeting was the first of its kind, he wanted the various representatives to participate in the discussions keeping the national interest in view and in a democratic spirit. He hoped that meeting of this kind would be held regularly once in a quarter.

He explained that the reason for holding the first meeting at Visakhapatnam was that most of the deep sea fishing vessels were operating from this place. It was the biggest sea-port for the operation of deep sea fishing vessels.

OPERATIONAL PROBLEMS

Mr. N. P. Singh, President, AIFI, expressed his deep appreciation for the initiative taken by Mr. Jakhanwal to hold quarterly meetings. He said that it was the common endeavour of the government as well as the industry to exploit the available marine fisheries resources of the EEZ. The approach of the industry was not to vindicate grievances, but to seek favourable redressal of their problems, as part of the relationship between the industry and the government, he said.

Dealing with the operational problems, he said that fishing for shrimp was now a marginal operation. The industry had no intention to seek help from the government to catch more shrimp.

The international prices for the export of shrimp were not under the control of the industry. Fuel constituted the single largest item of operational costs. At the annual general meeting of the AIFI held in early 1982, an assurance was given by Mr. R. V. Swaminathan, State Minister for Agriculture to the industry that total exemption from the payment of excise duty on fuel would be given. However there had been no orders from the government in this respect so far. In addition to this burden, all coastal states, with the exception of Maharashtra had been levying heavy sales tax on diesel oil. The Visakhapatnam Port Trust, in addition to collecting the wharfage at Rs. 500/- per month, besides the daily berthing charges of Rs. 107/-, was charging Rs. 40/- per kilo litre of fuel bunkered in port premises. Over and above these charges, in the case of vessels that entered the main port, pilotage charges were levied at Rs. 700/-, every time a vessel entered and exited. The vessels were also forced to wait for the pilotage outside the harbour which resulted in loss of fishing time. He felt that such of the kippers who were qualified should be allowed to take the vessels inside without the need for pilotage.

It was pointed out by Mr. Rastogi of Union Carbide, that at the longer jetties in the newly extended fishing harbour, there were neither power nor water connections. There were no bunkering points also.

POWER & WATER IN TWO MONTHS

In answering the above points raised by Mr. Rastogi, Mr. Thirunavukarasu Raju of Visakhapatnam Port Trust said that power and water facilities would be provided within two months. So far as

bunkering facilities were concerned, he said that adequate land was already handed over to H.P.C. for setting up storage tanks and for providing bunkering outlets. In regard to the pilotage charges, he said that the pilotage charges were levied only for the inner harbour. The Port Trust wanted the fishing entrepreneurs to use facilities at fishing harbour only. If it was desired to take any of the vessels into inner harbour, pilotage had to be paid. The representative of Union Carbide said that at the fishing harbour the berthing place earmarked for Union Carbide was allotted to others. Therefore they had no alternative other than seeking berthing facilities in the inner harbour.

CONCLUSION

Winding up the discussion on the subject, Mr. Jakhanwal said that the pilotage question would be discussed with the Chairman of the Port Trust. So far as the bunkering problem was concerned, his understanding was that H.P.C. had all the clearances and they would soon be providing bunkering facilities. Power and water points at the new part of the fishing harbour would be provided within two months.

IMPORT OF SPARES

Mr. P. K. Tagore of Britannia pointed out that they were having difficulties in getting their import applications for spare parts sponsored by the Director of Fisheries, A.P. in spite of a clarification from the Joint Controller of Imports and Exports that the Director of Fisheries was acceptable as the sponsoring authority. Explaining the need to have sponsorship, Mr. Tagore said that, under the present regulations 2% of the value of the imported

cost of trawlers was available to the owners for the import of spares. While the majority of the parts would be imported under OGL, there were certain banned and restricted items for which an import licence was required. It was only to secure this import licence, the relevant application had to be sponsored by the Director of Fisheries concerned. Mr. H. K. Babu, Director of Fisheries, A.P. who was present at the meeting, said that he would clear all pending applications immediately on return to his head quarters.

IMPORT OF FISHING NETS

Mr. N. P. Singh pointed out that certain fishing nets and gear were high cost items not available within the country and were in the nature of consumable articles. They should therefore be treated as spare parts and allowed to be imported as such. In regard to local purchase of fishing nets and gear, it was necessary to exempt the industry from the payment of excise duty and sales tax. Imports should also be permitted without the need for payment of duties as in the case of other spare parts.

GOA PORT'S EXHORBITANCE

Mr. Putturao of Tropical Shipping Company pointed out that the port charges at Goa were exorbitant. He said that they were charging Rs. 4,000/- for pilotage of the chartered vessels of his company. The anchorage charges were Rs. 360/- per day. He said that no other port except Visakhapatnam had separate rates for fishing vessels. The charges varied from port to port.

Mr. Srihari of Konkan Fisheries, pointed out that at Singapore no charges were levied on fishing vessels below 2000 NRT. However over and above this tonnage, charges were levied at 4 \$ per day per ton.

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RULES FOR CREW EMPLOYMENT

Cdr. Nair suggested that there should be clear cut guidelines concerning employment of crew on fishing vessels. There was need to add a new chapter on fishing vessels in the Merchant Shipping Act. It was also pointed out that a report on the subject was submitted to the government by a sub-committee in the month of June 1982. So far no decision was taken in the matter.

Representatives of Union Carbide and Konkan Fisheries pointed out that although government announced subsidies on indigenous construction of fishing vessels, the applications for subsidies on the trawlers constructed by them at Mazagon Dock and Chowgule shipyard respectively were not yet cleared.

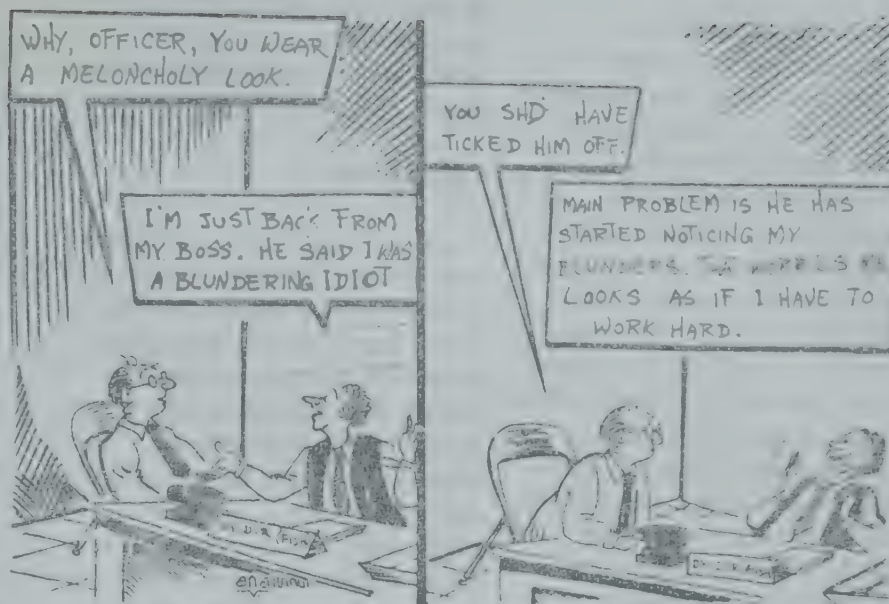
CONCLUSION

Winding up the discussions Mr. Jakhanwal requested the AIFI to furnish all details of state-wise pattern in the levy of sales tax on diesel oil and the pattern of levy of various charges on fishing vessels at the various ports as early as possible to enable him to take necessary further action in the matter. He said that the government would also collect all the information simultaneously.

Regarding the regulations governing the operation of fishing vessels including guidelines concerning employment of crew, he said that steps would be taken to expedite the decision of the government on the report of the sub-committee at the earliest.

'CASTE' SYSTEM

Mr. N. P. Singh, President, AIFI, observed that the government was following the 'Caste system'



in regard to giving clearances for the introduction of deep sea fishing vessels. He also said that there was an urgent need to introduce an effective domestic marketing system within the country to enable the producers to secure improved prices. He said that while trash fish exported to Taiwan was bringing US \$ 1000 per ton, the local rates never exceeded Rs. 5,000/- per ton. Mr. Jakhanwal suggested that the fishing industry should popularise sale of fish in remote corners of the country. If 30,000 tons of fish was thrown back into the sea, it meant that the problem was really serious, he said. In order to make recommendations concerning marketing problems he said that a group would be constituted with representatives drawn from Integrated Fisheries Project, A.P. Fisheries Corporation, MPEDA and from the industry. The Director of Fisheries, A.P. would be the Convener. He said that this committee would also look into the question of popularising fish consumption.

HARBOUR FACILITIES

It was pointed out on behalf of the industry that government

should pay particular attention to the development of fishing harbours. As facilities were available only at Visakhapatnam harbour, all the vessels were forced to operate from this port. It was pointed out that the depth available at Veraval fishing harbour was not adequate. Facilities were not sufficient at Roychowk harbour. Not more than 3m. water was available at Cochin harbour. At Vizhinjam harbour, fuel and water were not available. Dr. A.N. Ghosh, Managing Director, State Fisheries Corporation, West Bengal, pointed out that at Roychowk harbour all facilities such as bunkering, power and water and also a workshop were available. Mr. Jakhanwal said that the two vessels of Exploratory Fisheries Project would soon be shifted to Roychowk from Howrah.

ADMINISTRATION OF FISHING PORTS

It was urged on behalf of the industry that the administration of fishing harbours should be separated from the port trusts. It was also urged that priority should be given for berthing of fishing vessels at commercial harbours, for the reason that the vessels carried fish which was of a perishable nature.

DELAYS

Mr. N.P. Singh referred to procedural matters. He said that the parties were not in a position to know what was happening to their applications for an inordinately long time. He suggested that the applicants should be informed of the stage of consideration from time to time. He alleged that the government was rejecting applications without any prior reference for clarifications. He suggested that the industry should be informed first. It was also pointed out that there should be a time limit for disposal of applications. As an instance he pointed out that application by Britannia for chartering a fishing vessel from GDR was approved after a time-lag of 5 years, although orders had not yet been issued. In the same way as Ministries of Commerce and Industry had a discipline imposed upon themselves setting time limits for disposal, he suggested that the same procedure should be followed in the Department of Agriculture with an arrangement for clearance at a single point.

CONCLUSION

Mr. Jakhanwal pointed out that it would be difficult to indicate a time limit. The difficulty was that the delays arose during the course of processing not because of the Department of Agriculture, but because of others. He agreed that clearances at a single point were important. He was glad to say that in the case of applications for indigenous construction of fishing vessels, clearances would be accorded within 3 months. So far as applications for import of vessels were concerned, he said that they would take time. So far as chartering applications were concerned, he said that this was a relatively new subject and clearances would take time. He said that, in future, all applications

would first be acknowledged. If there were any deficiencies in the application, one letter would be sent containing all the points requiring clarifications.

CHARTERS

He said that within 3 months of chartering of fishing vessels, a charterer must come up with the proposal for acquiring the vessels. It was pointed out on behalf of the industry that in a period of three months a vessel would have barely completed one voyage and it would be impossible for any charterer to come up with proposal for acquisition. Unless the vessels operated for one full year, it would be difficult to make an evaluation of the performance. To a point raised by Mr. Jakhanwal, it was clarified that charterers applied for 5 nos. of vessels to deploy them in different areas when only they could have a composite picture. It was also urged on behalf of the industry that clearance of charter applications should be with reference to the terms and conditions in vogue at the time of application. Any changes made should be applicable to cases received after their publication.

On the subject of charters, Mr. P. K. Tagore of Britannia suggested that blanket letters of intent should be given to fishing companies to charter fishing vessels. This permission should cover all countries with the exception of those from which the government could not permit charters. He said that such an approach would enable the parties to contact various foreign sources and come up with suitable proposals. Under the existing procedure, it was pointed out, parties had to contact various foreign fishing companies, most of whom were reluctant to give offers on the ground that it would take a long time

for the Indian Government to give permissions and they could not reserve the vessels for a long time. If there was a blanket permission to obtain offers it would become easier and the parties could approach the government for final permissions straightaway.

Mr. Wankar of Metropolitan Trading Company, related their experiences in the operation of chartered vessels. He said that clearance of vessels by the Navy took more than one month in their case. After the inspection also it took another one month to get the final permission. He said that chartered vessels should be allowed to touch any of the ports. Referring to the condition that certain number of vessels should be purchased by the charterers, he said that the operation of the vessels was not adequately remunerative and they were not able to save enough money even to pay 5% of the margin money for getting SDFC loans. Mr. Jakhanwal said that time was given to various parties to purchase the first vessel in 18 months of commencement of charter operations.

Mr. Ramdas of Cholomandal Fisheries, explained with the help of charts and tables to prove that there was no reduction in shrimp landings in the country. On the other hand the statistics of shrimp landings by fishing vessels operated by the State Fisheries Corporations proved that the landings were going up. There was also no appreciable reduction in size of shrimp caught. Such being the case, he said that it was unfair to say that the permissions for import of trawlers equipped for shrimp fishing would not be renewed. Mr. Ramdas also said that he contacted the indigenous shipyards for the construction of deep sea fishing vessels but the response was

poor. He said that there was an urgent need for the import of technology for indigenous construction. He also pointed out that the condition for providing a bank guarantee to the extent of 120% of the cost of indigenous fishing vessels should be relaxed atleast in the case of technocrats.

Mr. Ramdas said that in the case of shrimp fishing, all the facts were available and these indicated that there was still a considerable scope for exploiting shrimp resources. Even so, completely ignoring this aspect, there was only a talk about diversifying into tuna fishing about which no facts were available.

CONCLUSION

Mr. Jakhanwal said that it was also necessary for the EFP to locate new shrimp grounds, particularly in the south of Visakhapatnam. He said that government would consider permitting import of second hand vessels not more than 5 years old, on merits.

Reacting to the various other points Mr. Jakhanwal said that the question of making certain concessions in the case of technocrats for providing bank guarantee for the loans taken towards indigenous construction of fishing vessels would be considered. He stated that a public notice concerning indigenous construction of fishing vessels would be issued by the government in about 2 to 3 weeks. Referring to 1977 import scheme, he said that the earlier it was closed the better would it be. Most of the cases had not materialised. Several companies changed their composition. Some companies sought changes in sources of import as many as six times. Prices had gone up in the meanwhile. While there was no general embargo on imports, the government was unable to appreciate frequent changes in the sources of import. Referring to import of shrimp trawlers he said that government would not give the same high priority as in the case of

other vessels. Mr. Jakhanwal said that, if a paper justifying the scope for explaining shrimp fishing was given, he would get it examined by CMFRI.

It was pointed out by Mr. N. P. Singh, that no single existing operator was permitted to charter fishing vessels. Permission were being given to all new comers, completely unconnected with the fishing activities. Mr. Jakhanwal said that there was no intention on the part of the government to bar existing companies from chartering fishing vessels.

He said that SDFC had enough money to provide loans. The Department of Agriculture has also wanted to transfer more money to SDFC. However, SDFC was not accepting the same as they themselves had enough money. He exhorted various parties whose applications were cleared by the SDFC to complete all formalities quickly to facilitate the release of loans.

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FISHING

Roychowk Harbour is now Operational: Inauguration by Jyoti Basu

September 26, 1982 was a great day for Indian deep sea fishing operators. On this day, Mr. Jyoti Basu, Chief Minister of West Bengal inaugurated the operation of trawlers from the Roychowk fishing harbour located in South-24 Parganas district of West Bengal. From now on Indian deep sea fishing operators can avail of the facilities at the harbour. Flagged off by the Chief Minister, four trawlers proudly sailed out for deep sea fishing on this memorable day. One of these 'M.T. Behula' belonged to the State Fisheries Development Corporation and the other three were owned by Union Carbide.

Speaking on the occasion, Mr. Jyoti Basu advised the people of West Bengal to take to the consumption of marine fish as they were cheaper and good for health. Only by tradition Bengalis preferred fresh water fish to sea fish. A few years ago very few preferred eating sea fish such as pomfret. Conditions had changed considerably now. Mostly out of compulsion to start with, on account of rising prices of inland fish, the people of West Bengal took to consumption of sea fish and were now gradually adjusting themselves to sea fish. It was

no longer detested in a Bengali family.

DR. B. C. ROY DID IT FIRST

Continuing, the Chief Minister said that efforts to introduce deep sea fishing operations from West Bengal failed in the past. He paid a tribute to the foresight of Dr. B. C. Roy, who had first brought a few deep sea fishing vessels to Bengal from Japan. Their operations had however failed owing to lack of training facilities and lack of experience. Having identified the reasons for the past failure the government of West Bengal had advised the State Fisheries Department to send its 4 trawlers and their crew to Visakhapatnam for training and gaining experience in deep sea fishing in 1977.

WEST BENGAL IS NOW COMPETENT IN DSF

Now that the crew had gained adequate experience, the vessels were now back at Roychowk. He was confident that the trawlers would give a good performance, resulting in substantial catches, for local consumption as well as exports.

The credit for the setting up of the Roychowk harbour went

largely to the late Jyotirmoy Basu, the Chief Minister said. The late Jyotirmoy Basu worked very hard to secure release of funds from the centre for setting up the harbour.

Mr. Kironmoy Nanda, Minister of State for Fisheries, West Bengal said that the government was very firm in its decisions to enter the fish trade although the resources were limited. He said that supply of fish from the operation of deep sea fishing vessels would enable the government to enter the trade in a substantial manner. At present the trade was completely under the clutches of a few private merchants. Referring to the purpose in setting up the harbour and the proposals for setting up more number of harbours, he said all these were meant to provide a large number of fishermen in the coastal areas with jobs. The government would soon be supplying them with small mechanised fishing craft for sea fishing. Government would also make arrangements for purchasing their catches at reasonable rates.

Mr. Parimal Mitra, Forest Minister, Government of West Bengal pointed out that with the supplying of mechanised boats

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to the fishermen in the Sunderbans and its neighbouring areas, it would be possible to break the monopoly of the money lenders over them. He pointed out that the Forest and Fisheries Departments together had already taken up several fish farming projects in the Sunderbans for the benefit of fishermen.

Roychowk fishing harbour was sanctioned in 1971 by the Ministry of Agriculture with an outlay of Rs. 151 lakhs. In 1973 this outlay was increased to Rs. 245 lakhs. The final sanction was given in 1977-78 for Rs. 323 lakhs. The work was completed and the harbour was inaugurated on April 17, 1982 by Mr. B. D. Pandey, Governor of West Bengal. The harbour has facilities for the berthing of 7 vessels, but in two rows, upto 15 can be accommodated. It can also accommodate 150 small mechanised boats. The draft available is 5.5 m.

The harbour is now having all required facilities for the operation of fishing vessels. Power and water supplies are there. Facilities for bunkering have also been provided. While there is no workshop, the authorities are in readiness to allot land for setting up workshops by interested parties.

FISHING COMPANIES HAPPY

Fishing companies are now happy that their vessels can operate from Roychowk harbour. This would bring them closer to shrimp grounds and will result in saving of fuel. Some express the fear that, in view of the wide fluctuation in the tidal range, the shore activities, while the vessels are at port, might be convenient. At the same time they say that this could easily be overcome. Another fear expressed by them relates to repairs

and maintenance. As there are no workshop facilities immediately, it would be necessary for them to incur heavy expenditure to undertake repairs at far off places in Calcutta. They have also a feeling that, since all the processing factories are located far away from Roychowk, transportation of raw material may cause some difficulties. The real problem in this connection can be the question of weighing, at the harbour site or at the premises of the factory. Some of these fears are imaginary and, once the trawlers operate from the port, most of these problems would get resolved automatically.

To start with, 3 trawlers of Union Carbide and one trawler of State Fisheries Development Corporation commenced operations. Soon 3 more trawlers of West Bengal Corporation would join. It is learnt that all MDL trawlers of Union Carbide would soon shift to Roychowk. A view

expressed is that the facilities at Roychowk would be utilised during the period August-March/April. During the rest of the period, in view of the rough seas off West Bengal Coast, on account of the south-west monsoon conditions, the trawlers may operate from Visakhapatnam.

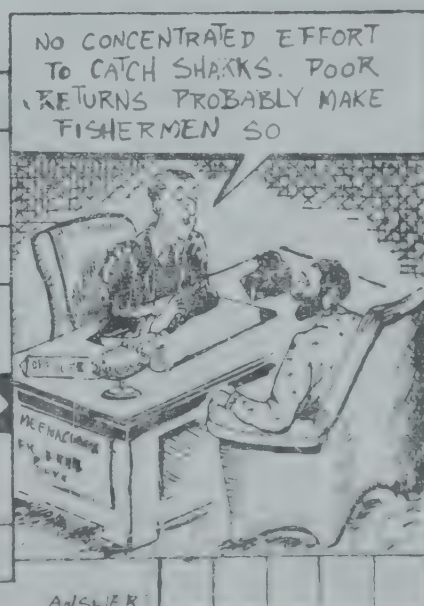
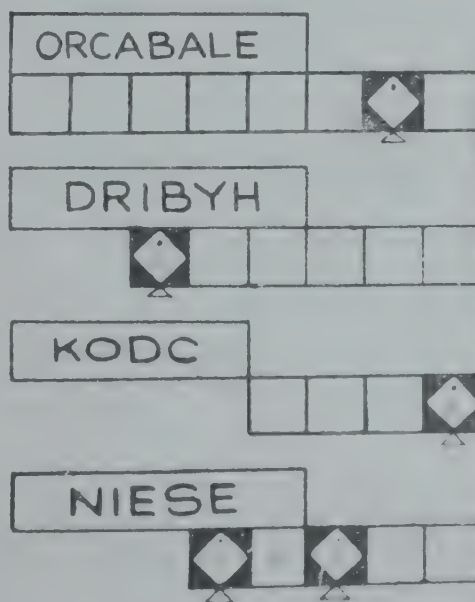
Making Roychowk fishing harbour operational is an achievement. The credit for this largely goes to Mr. B. C. Sarma, Secretary (Fisheries), government of West Bengal, and Dr. A. N. Ghosh, Managing Director, State Fisheries Development Corporation, West Bengal.

It is understood that the management of the fishing harbour would soon be taken over by the state fisheries department/fisheries corporation. The Calcutta port trust has already agreed to this and the approval of government of India is to be obtained.

FISHERMEN'S JUMBLE

These words are as unsorted as a fish haul. Restore them to the correct order, with each letter to a square. After this, arrive at

the answer by adjusting the letters in the 'fishes', deriving clue from the sketch alongside. Answer on p. 45



Management of Brackishwater Farms Training Course at Kakinada Dr. R.M. Acharya Inaugurates

Dr. R. M. Acharya, Deputy Director General (Animal Sciences) I.C.A.R. inaugurated a training course on management of brackishwater farms at Kakinada on 7 Sept. 1982. The function was presided over by Mr. D. K. Panwar, Collector, East Godavari District, Andhra Pradesh.

Dr. S. N. Dwivedi, Director, Central Institute of Fisheries Education, Bombay welcomed the gathering. In his welcome address, he reviewed the progress in the development of Brackishwater fish farming and advocated the taking up of an integrated area plan through 'fishery estates'. He said that it would be possible to earn Rs. 20,000/- per hectare in a year from brackishwater fish and prawn farming, if the latest technology available was adopted.

Mr. Panwar lauded the role played by CIFE in the development of brackishwater farming and prawn culture technology, through undertaking regular training programmes for the transfer of the relative technology. He said that greater interaction between organisations like CIFE, A.P. Agricultural University and such other institutions was necessary to help the poor fishermen. He emphasised the need to have competent extension personnel for the transfer of technology. There was now considerable awareness towards the lucrative nature of brackishwater fish farming, he said.

Dr. Acharya, in his inaugural address, apprised the participants that ICAR was making an all out effort to strengthen the

infrastructural facilities for undertaking applied research, particularly in respect of promising sectors such as fish farming and fish seed production.

CIFE

He made a particular mention of the successful introduction of modern carp hatcheries by CIFE, which could be run even when the rains failed. He emphasised the need for effective manpower training for utilising the technology in the field. He was appreciative of the role played by the CIFE in the training of manpower in the development of fish farming, both in fresh as well as brackishwaters, in establishing prawn seed banks and supplying prawn seed to fish culturists in various parts of the country. He said it was now possible to produce 2.6 tons/yr/ha of fish and prawn under polyculture. It was possible to earn more than Rs. 40,000/- ha/yr. by taking up integrated farming. He added that it was a significant achievement on the part of the CIFE to have enabled a farmer to grow tiger prawn in fresh water on saline soil in Machilipatnam area of Andhra Pradesh. This opened up new vistas for saline soils which were lying derelict.

Although the announced strength of the course was only 20, there were 38 participants. The increased number was admitted into the course on account of heavy nominations received from the States of Andhra Pradesh, Tamilnadu, Kerala, Karnataka, West Bengal and from the ministries of agriculture and commerce. There were also participants nominated by banks

and universities. The participants included a large number of private entrepreneurs and educated unemployed.

An exhibition to mark the inaugural function was held at the brackishwater fish farm at Kakinada. This was opened by Mr. Panwar.

The training programme covered all aspects of brackishwater culture practices, more through practical demonstrations. Lectures on topics of practical interest were delivered by various experts who included Dr. A. N. Ghosh, Managing Director, State Fisheries Development, West Bengal, Mr. K. K. Ghosh, Senior Scientist, CIFRI, Dr. T. Rajyalakshmi, Professor (fisheries), A.P. Agricultural University, Mr. D. V. Reddy, Professor, CIFE, Mr. J. V. H. Dixitulu, Editor, Fishing Chimes and various others.

The valedictory function was held on Sept. 20, 1982 presided over by Mr. K. Koteswararao, Manager, State Bank of India, Kakinada. Mr. B. Muralidhararao, Jt. Director of Fisheries, brackishwater farming, Government of A.P., delivered the valedictory address. He also presented the certificates of having completed the training course successfully, to the various participants.

Mr. D. V. Reddy read out an evaluation report.

Mr. G. Gopalakrishna Farm Superintendent, BWFF, Kakinada proposed the vote of thanks.

On behalf of the participants, Mr. Y. V. M. Gandhi, Assistant

Director of Fisheries (BWFF) thanked the organisers for having equipped them with an effective

training in the management of brackishwater farms.



DR. R. M. ACHARYA, D. D. G. (AS) (ICAR)
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Sitting from L to R: **MR. H. G. HINGORANI, PRINCIPAL, DR. S. N. DWIVEDI, MR. D. K. PANWAR, MR. D. V. REDDI**



DR. R. M. ACHARYA BEING SHOWN ROUND THE EXHIBITION BY DR. S. N. DWIVEDI

Contd. from p. 41

How to keep sharks away when they are not needed

try decomposed shark meat for sometime as a repellent to sharks. This will give information on reaction of other fishes while trawl fishing, to decomposed shark meat. If other fish are not influenced,

then attaching dry shark meat to trawl nets will be a useful system.

Ben-Yami (1981) suggested that the immediate way in reducing the shark attack could be by reducing the number of sharks in the immediate area by intensive fishing. This also appears to be

a practical recommendation, according to which separate commercial shark fishing activity has to be developed for effective utilisation of this raw material potential both for internal and export markets besides getting rid of the problem of shark attacks to the extent possible.

Training Course on Management of Freshwater Fish Seed Farms

A training course on management of freshwater fish seed farms was successfully conducted by the Central Institute of Fisheries Education, Bombay, at Balabhadrapuram fish farm in Andhra Pradesh from 4 to 17 August 1982. A large number of trainees from PFDAs, private sector, and government departments participated in the training course. The emphasis in the course was on imparting training in the technique of operation of carp hatchery, model D-81, apart from the techniques of breeding indigenous major carps and exotic carps. Improved methods of nursery management were also an important part of the training.

The course was inaugurated at the brackishwater fish farm, Kakinada by Mr. K.H. Alikunhi, under the Chairmanship of Prof. S. Dutt of Andhra University. Dr. Y.R. Tripathi of Agriculture Finance Corporation was a distinguished guest at the meeting.

Mr. Hingoroni, in his welcome address, referred to the far-reaching contributions made by Mr. Alikunhi to the field of fish culture. Mr. Alikunhi spent the entire night of 3 August at Balabhadrapuram fish farm, attending to the breeding of exotic carps, and on the morning of 4 August he came straight for the function. His undiminished zeal, even after retirement from

GOI service and FAO, towards the cause of development of fish culture has to be emulated by the present generation, he said. He welcomed him warmly, as also the other guests, particularly Dr. S. Dutt and Dr. Y. Tripathi.

Mr. Alikunhi, in his inaugural address expressed his happiness about the good work being done at the F.W. fish farm at Balabhadrapuram, and at B.W. fish farm at Kakinada under the dynamic leadership of Dr. S.N. Dwivedi. He expressed his satisfaction at the periodic organisation of training courses of this kind, in which a large number of private candidates participated. He advised the participants to develop powers of observation and deduction and work hard to overcome the constraints in the field of fish culture.

Dr. Tripathi explained the role of institutional finance in augmenting fish seed production. Mr. D.V. Reddi read out the report on fish seed production at Balabhadrapuram farm. He explained that the latest techniques in the operation of carp hatchery Model D-81 were being successfully transferred to fish farmers.

Dr. S. Dutt, in his presidential address, said that the demand for fish seed for stocking various suitable waters which were now lying fallow should be met by

...the production of fish seed through adoption of the latest techniques. Mr. S. Gopalakrishna proposed a vote of thanks.

Mr. V.S. Devara presided over the concluding session. Mr. C. Raghavan, Project Director, District Rural Development Agency, East Godavari District was the Chief guest. Mr. Hingoroni told the participants that a private farmer at Manchikalapudi achieved outstanding results in fish seed production, under the guidance of Central Institute of Fisheries Education. Mr. Raghavan congratulated CIFE for conducting short term training programmes. He said that 'Trysem' students trained at Balabhadrapuram farm were producing catla seed. The credit for this went to CIFE, he said. He distributed certificates to nineteen successful trainees. Mr. Devara, in his address, said that earlier they could produce 40,000 seed in a season. Now this much quantity was being produced in a single day.

Mr. Sinha, Farm Superintendent, Balabhadrapuram farm read out an evaluation report on the training programme. He highlighted the subjects covered and the field work done, making reference to the conventional hatching technology and the latest technology introduced through the operation of D-81 hatchery providing for controlled temperatures. He said that field visits were arranged to the trainees during which they studied work at various private fish seed farms.

Mr. Panasarama Reddy, one of the trainees and a holder of post-graduate qualification in fisheries said that he would soon convert his 55 acre land into a farm for undertaking fish seed production and fish culture. Mr. D.V. Reddy proposed a vote of thanks.

Task Force Recommends Duty Relief on Oil for All Crafts

The Task Force set by the Ministry of Commerce, and headed by Mr. C. Venkataraman, Additional Secretary, in the Ministry recommended that there should be complete exemption of excise duty on diesel oil used by all kinds of fishing crafts irrespective of their sizes and mode of operations. 50% tax exemption is at present allowed only to the deep sea fishing vessels operators who export shrimp.

Another recommendation was that the state governments should exempt fishing vessels from the payment of sales tax on diesel oil used by them for fishing voyages. The example of Maharashtra where this exemption now existed was cited by the Task Force. The relief was also recommended for certain spare parts for the vessels and for other accessories.

The Task Force, in order to ease the economic burden on the maintenance of the engines and to bring down the cost of boats, suggested that the Central and State governments should waive the excise duty and sales tax on engines and spares.

FISHERIES DEVELOPMENT CORPORATION

Task Force had observed that Indian fisheries would be much more beneficial if the entire responsibility of building of deep sea fishing vessels, processing and marketing of marine products, and exports was exercised under the authority of one body such as a fisheries development corporation.

It was recommended by the Task Force that fishing vessels should

be treated as ships under Section 80(j) and 80(k) of the Income Tax Act, and special holiday benefits be extended as applicable to the newly established industrial undertakings.

It was also recommended that investment allowance entitlement for deep sea fishing enterprises should be raised from the existing level of 25 percent to 40 percent and allowed under Section 32(A) of the Income Tax Act.

To benefit the fishermen operating the fishing craft fitted with outboard motors, the Task Force suggested that if the performance of the fishing craft fitted with outboard motors was proved to be effective and profitable to the fishermen, complete exemption from the import duty should be given to them.

On the construction of fishing vessels the Task Force felt that, in view of the scarcity of timber for construction of the vessels, an alternative material, preferably fibreglass should be considered. However, since the fibreglass was made out of costly material such as resins, fibreglass, polyurethane etc., there should be tax exemption on them, the Task Force felt.

Subsidies on the construction of fibre glass boats were also suggested by the Force. Earlier some states provided this facility by giving subsidies of 50% on the cost of engines and 20 per cent on the cost of hulls.

A three year moratorium for payment of interest to the banks

was suggested by the Task Force for the sick boat units running under financial crisis. This moratorium should be provided only on confirmation that the sick units would be capable of generating adequate resources during the moratorium period to repay the loans with interest in the subsequent period, the Task Force said.

CENTRAL INVESTMENT SUBSIDY

On the deep sea fishing sector, the Task Force suggested that a Central investment subsidy of 15 percent should be provided on the cost of each vessel or Rs. 15 lakhs whichever is less.

On the quality control of the marine products meant for exports, the Task Force recommended that the export inspection agency should carefully check the quality and standards of the products with the specifications required by the importing parties. In this way, the Task Force felt that there would be effective check on the 'on account' exports effected on behalf of the merchant exporters and exporting houses. It was suggested that the processor and the merchant exporter should be jointly made responsible for the quality of the goods processed and shipped. Stringent action should be taken on the cases where the exports are rejected more than once due to bad quality, the Task Force recommended. It was suggested that such firms should be deregistered by the Marine Products Export Development Authority.

On the levy of purchase tax on marine products, the Task Force said that all states should form a uniform policy in this matter. It was suggested that purchase tax should not be levied by the state governments on the marine products intended for exports.

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It said that since the marine products that are exported earn valuable foreign exchange, they should not be levied with the purchase tax and it was not in the interest of the fishing industry.

DIVERSIFICATION

On diversification of the marine products, the Task Force pointed out that import duty on the modern machinery that was essential should be exempted. This should be allowed even to the refrigerated transport vehicles, the Force said.

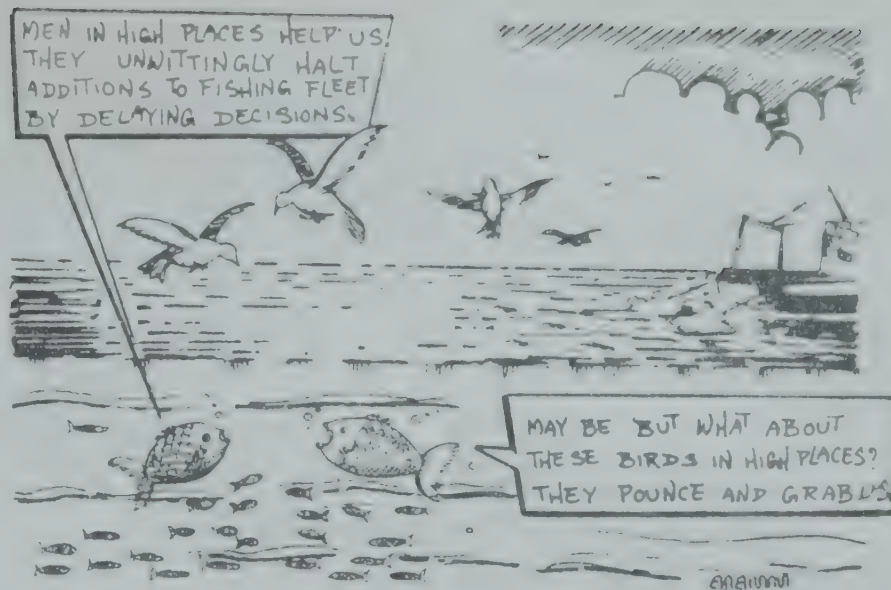
The Task Force recommended that cold storages should be installed in all the major ports in the country in a phased manner. It suggested the banning of export of 'broken' grades of shrimp.

It was suggested by the Task Force to all the maritime states to establish fishery resource management agencies.

Conversion of 30,000 ha. of traditional culture area to be

brought under fish culture was entrusted to the MPEDA by the Task Force. It had set target for MPEDA for bringing an additional 50,000 ha. of fresh area under culture by 2000 A.D., preferably to grow prawns.

The Task Force's 21 members, were drawn from all concerned government departments and all sectors of fishing industry.



Contd. from p. 8

Depths of Indian Deep Sea Fishing

fishing should be developed. Dr. Gokhale can argue in favour of inshore fishermen and say that larger vessels should not intrude into the inshore zone. But he cannot say that there should be no deep sea fishing. It is something for the investors to decide.

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Seeing through Alvi Net Fishing

K.S. MRUTHYUNJAYA

Alvi fishing gear is known to be a destructive one from the point of view of a fishery scientist. Of course, there are both known advantages and disadvantages regarding the usage of this fishing gear.

In the present context of development of fisheries in reservoirs of Karnataka, the use of Alvi nets for exploitation of fishery has to be judged from all angles.

Catch composition of any reservoir in Karnataka (including Tungabhadra and K.R. Sagar) reveals that the population of predatory fishes, viz *Mystus* spp. *Wallago attu*, *Channa* spp. and other undesirable, and uneconomical trash fishes dominate. This clearly indicates that their multiplication in the reservoirs is detrimental to the establishment of carp and other exotic fisheries. It is observed from the catch composition that cat fishes constituted 25 to 35%, both by numbers and weight. Effective control of these and other predatory fishes is imperative for building up a population of commercially important fishes feeding on lower food-chains.

COMMERCIAL EXPLOITATION

The reservoirs are being exploited in any one of the following ways:

- By departmental fishing.
- Leasing of fishery rights by auctioning (i.e. Tender-cum-auction sales).

c) Conservation by issuing licences.

d) Leasing by Royalty system (not invogue.)

Departmental fishing is done in a limited way in many of the reservoirs. Departmental fishing in any way is not an economic proposition and the catches are always very poor due to the limited number of fishermen and nets. (i.e. fishing efforts are bare minimum). This should therefore be limited to experimental and exploratory fishing only and possibly for preventing trash fish and predatory species from gaining a stronghold in the reservoirs, by capturing and destroying them through all possible means.

ALVI NETS FOR REMOVAL OF UNDESIRABLES

By issuing permits to local fishermen or Cooperative Societies to operate Alvinets in the reservoirs both the predatory and undesirable and economically unimportant species can be eradicated, thus paving way for

multiplication and establishment of carps to enrich the fishery of reservoirs. Eradication of cat fishes and other predatory ones is not possible through direct departmental efforts. Without extra cost, the department could get rid of these undesirable species through Alvinets. Alvi fishing should be permitted for two consecutive years for every reservoir so that 90% of the predatory and trash fish species are removed by the fishermen.

UNAVOIDABLE

Alvi nets are not doubt destructive gears as these nets remove the juvenile carps (both indigenous and exotic) along with all other species available. This loss cannot be avoided and such loss of carp stock has to be borne in the interests of enriching the reservoirs in future with culturable and economically important carp species.

DEVELOPMENT PROGRAMME

Afterwards, a gap in fishing activities for one or two years has to be given to the reservoirs and



K. S. MRUTHYUNJAYA

During this period operation of firearms should be prohibited. The fishery of each reservoir has to be systematically studied on catch composition, yield per hectare, growth rate of carps etc. and in that light suitable stocking programmes have to be implemented.

Yet there are no doubt unreserved measures aimed at obtaining sustainable yield.

Optimal exploration of the fishery of the reservoirs in the state, keeping sustainable levels

in view, is very much needed now. This can be justified by taking into account the average yield and yield of any reservoir in the state, which may work out not more than 25 kg./ha./yr. on an average. This situation is really a deplorable one and could be overcome by combination of quick growing indigenous and exotic species as is followed in U.P. and M.P., adopting closed seasons, declaring sanctuaries in the upstreams and downstreams of reservoirs and by adopting other suitable conservation methods for sustainable yields.

In the stitch and glue method taught to the carpenters at Madhav, several sections of laminated plywood are glued together and the joints are sealed with epoxy resin and covered with polythene rope.

When the resin has set, the wires are cut and the finish is applied.

Because the area has lost most of its skilled carpenters to Saudi Arabia, a method which requires minimal carpentry skills is particularly attractive. It also avoids the dependence of the traditional boat-builder on sectional timber which is not readily available in many developing countries. In fact, use of plywood reduces the cost below that of comparable locally-made boats.

"As the project has developed", ITIS continued, "it has become clear that design requirements vary in different parts of the coast. Such factors as crowded beaches, rough conditions, different seasons and the need to accommodate larger nets determine the type of boat needed. New designs have, therefore, been developed".

SUBSTITUTE

One of these, the Kottakat, is a 24 ft. long substitute for the traditional kattumaran. It is lighter and narrower than the sandhopper and more appropriate for villages with crowded beaches. It is also expected to offer improved sailing performance and is suitable for beach construction.

The co-operative boatyard has now sold three Kottakats.

Another design is the Muttomkat, a 24 ft. long gill-netter powered by a 9 hp engine and built using the stitch and glue technique. KSSS has built five and has orders for more. It sells for Rs. 18,000 compared with Rs. 28,000 for a similar boat built using conventional methods.

Courtesy—Fishing News International

Stitch and Glue Boat Building Technique: Adoption in Tamil Nadu

An article in FISHING NEWS INTERNATIONAL in July 1980 has led to the introduction of the stitch and glue boat building technique to a yard in Tamil Nadu.

Intermediate Technology Industrial Services (ITIS) has introduced the technique to Muttom Co-operative boatyard, which is part of the Kottar Social Services Society (KSSS), a development agency supported by Oxfam and the Belgian Catholic Church. Assistance in setting up the new technology was provided by UK boat designer, Edwin Gifford.

The aim is to make improved designs for beach landing boats available at reasonable prices and increase the catching capability of some 4,000 local fishermen whose average income is only about Rs. 1,400 a year.

Their traditional boats, long held together with coconut fibre rope, are inefficient and can be danger-

ous, says, ITIS. Meagre catches reflect their limitations. They are confined to working short distances off shore, have little manoeuvrability or space for gear. Also, as in many parts of India, good timber for boats is rapidly rising in cost.

ITIS says it became involved in the project through a request for more information about the stitch and glue techniques from Father Pierre Gillet, Technical manager of KSSS. It was decided to introduce the method by training carpenters to build Gifford's sandhopper, a boat designed for beach-used fishing, developed in UK with ITIS support.

The sandhopper was found to be rather short for conditions at Muttom, so a 20 ft. version, (still cheaper and simpler than the 24 ft. sandhopper) has been developed and is now under construction in India.

Village Study in Kerala

Dr. Rolf Wilmann, a West German Socio-Economist working as a consultant for FAO, spent some 19 months conducting a study of costs and earnings of fishermen and their families in Kerala state.

His report points to many ways in which the fishermen can be more effectively assisted to improve their earnings and living standards.

The study, undertaken through FAO's Bay of Bengal Programme for the Indian Community Organisation, concentrated on 15 fishing villages in Kerala (there are 260 in the State). They engaged as enumerators for the field work, 23 people from fishing families.

"We needed to know how the fishermen's daily earnings compared to those of other workers, such as agricultural labourers", Dr. Willmann explained. "We recorded detailed figures of the sharing system practised by fishermen,

how much money is taken by the boat owner, the net owner and any other person with a claim to a share of the catch money".

SELLING

Another enquiry was into the selling of fish by auction, bargaining, fixed price etc. The study looks into the way merchants buy fish and the prices they pay, and how labour intensive the distribution and marketing system is.

"Our study shows which gear combinations are best at any one time of the year. In most cases, of course, the fishermen know which combination is needed. What is generally needed is a greater exchange of knowledge and more-cooperation between fishermen", Dr. Willmann said.

One of the main points emerging from the study is that most assistance projects try to introduce new gear and methods, etc. instead of working at the lower level to

seek first to improve existing practices and gear.

NEEDED

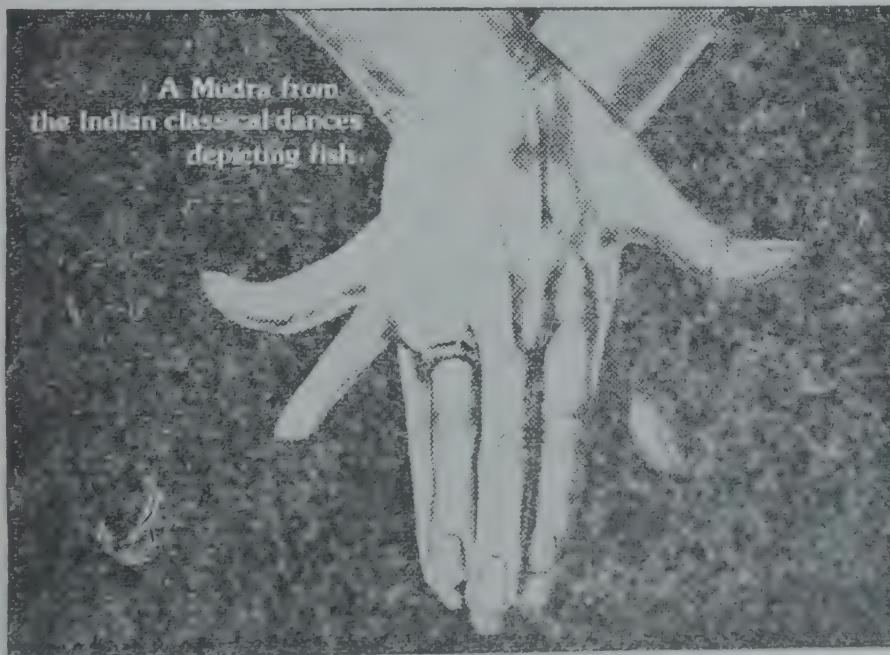
"We hope the study will be read and accepted by all those concerned with development plans for village fishermen and their communities. Dr. Willmann explained. "The sort of thing that is needed, for example, is to be sure that the resources exist for more fishing before planning to increase the effort."

The study has shown that mechanised driftnet boats have engines too high in power to be able to operate profitably.

Dr. Willmann also mentioned a "mother-ship operation", a mechanised gill-netter or trawler in the off season which tows 46 dugout canoes to the fishing grounds. The "mother-ship" and the canoes fished and good catch was made. The ship in such an operation gets a fixed price or share of the catch for towing the canoes.

Courtesy—FISHING NEWS
INTERNATIONAL

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MARINE FISHING IN WEST BENGAL

B.C. SARMA
Secretary (Fisheries)
West Bengal

The present annual fish production in West Bengal is 3.70 lakh M.T. comprising 3.40 lakh M.T. from the inland and 30,000 M.T. from the marine sector. Although West Bengal produces more than one-third of the total inland fish production in the country, its marine catch constitutes only 1.8 per cent of the all-India figure. The State has two maritime districts, namely, Midnapore and 24-Parganas. Its coast line is only 64 km. in length with the continental shelf extending over 20,000 sq. km. As the two districts are situated in the deltaic region, the sea waters are shallow with high turbidity but rich in organic content due to nutrients provided by the fall of leaves of luxuriant mangrove forest bordering the coast.

Of the total number of 3.30 lakh active fishermen in the State nearly 48,000 are engaged in the marine sector. Of late, concentration of migratory fishermen from interior districts in different khutias along the coast line has been noticed. These fishermen are engaged in marine fishing mainly with traditional craft and gear from October to February. During the remaining period of the year they are either engaged in estuarine or inland water fishing or agriculture.

Owing to the shallowness of the waters the sea along the coast of West Bengal is notorious for its

roughness and high tidal amplitude. As a result, the season for fishing in the sea is limited to about seven months only. In the training courses run by the State Government fishermen have been trained how to extend the period of fishing through application of improved craft and gear.

Both in inshore and offshore areas traditional fishing dominates the fishing scene in the State. It has been estimated that nearly 3,000 traditional boats and 580 mechanized boats are engaged in marine fishing. The type of boats used are Bachhari, Chhot and Dehingy varying in length from 6 to 15 metres. The craft are mainly employed in bag netting (Behundi) for miscellaneous fish in winter months and drift gill

netting (Chandi) for hilsa and other quality fish meant for home consumption. Bag nets are used from mid-October to mid-February and drag nets from June to September and November to February. The catch composition from Bahundi comprises Ribbon fish (30 per cent), and Bombay Duck (50 per cent) whereas that from Chandi constitutes hilsa (30 per cent) and cat fish (70 per cent). To operate a Behundi net, nearly 10 to 40 persons in non-mechanized boats and 10 to 80 persons in mechanized ones are employed while the operation of Chandi takes only six to 10 persons per boat-net combination. Beach-seining and long lining are other fishing methods adopted in a small measure.

In the off-shore region, i.e. the sea having a depth of 10 to 40 fathoms, small trawlers and mechanized boats are employed in trawling and drift gill netting. So far as deep sea fishing is concerned there are only four Mexican type trawlers owned by the State Government which are operating in the region.

INHIBITING PROBLEMS

If one identifies the problems inhibiting the development of marine fisheries in West Bengal the following factors among others emerge conspicuously:

(i) The sea is rough and the tidal amplitude is very high unlike the lower east coast or the West coast. Because of cyclonic conditions a considerable part of the area remains closed for fishing.

(ii) The fishery resources have not been adequately surveyed especially in the shallow inshore region. Although the engineering fisheries group of the Government of India have been conducting



B. C. SARMA

a survey in the region, it has been limited to depths of 15 fathoms and above.

(iii) After Independence the bulk of marine fishermen were left over in East Pakistan, now Bangladesh. The fishermen of West Bengal are mainly used to estuarine and inland fishing.

(iv) The local population has a strong preference for fresh inland fish. Of the marine species only a few are preferred.

(v) Fishing harbours with landing and berthing facilities have been lacking. Modern shore-based facilities are also non-existing. Even ice, packing and storage and transport are lacking at the existing landing sites.

(vi) Nearly 50 per cent of the marine catch comprised low value fish. Although a portion of these is dried and exported, a substantial quantity remains unutilized and does not have a good market.

(vii) Lack of adequate financial support from financial institutions has been a constraint.

(viii) There is no major national level marine fisheries institute in the upper east coast, as a result of which local problems like improvement of craft and gear, utilization of low value fish, and survey of resources have not received due attention.

Although more than 90 per cent of the total fish production in the State comes from the inland sources, the State Government has laid more emphasis on the development of marine fisheries. It is the objective of the Government to increase marine fish production from 30,000 M.T.

to nearly 50,000 M.T. by the end of the Sixth Plan. The following schemes and projects have been taken up by the State Government with this end in view:

(1) Construction of minor fishing harbours.

(2) A scheme for landing facilities at small fishing centres provided with guidelights and other infrastructure.

(3) Development of off-shore fisheries by rendering extension service.

(4) A marine resources survey, standardization of craft and gears, training of officers, fishermen, etc.

(5) Exploitation of marine resources by mechanization and improvement of fishing craft with diversified fishing.

(6) Development of infrastructural facilities for marine fishing villages.

(7) Imparting training to fishermen and women for net making and repairing and other ancillary activities for skill development in fishermen's families.

(8) Financial support to primary/central fishermen's co-operative societies.

(9) Construction of shore installation at Roychowk Fishing Harbour.

(10) Subsidy for fishing nets and fishery requisites and diversified production of fish by-products.

The total outlay under all these schemes is nearly Rs. 534.90 lakhs during the Sixth Plan.

Several fishermen's villages have been provided with infrastructural facilities like roads, tubewells etc.

Construction of the fishing harbour at Roychowk has been a step in the right direction. The harbour complex which was commissioned in April, 1982 has two components, viz. a river front complex and shore complex. The river front complex consists of a jetty, a link road, bunkering facility, water and power supply and berthing facilities and residential quarters for the management staff. A slipway is expected to be constructed during the second phase of the project. The shore complex which is most modern consists of an administrative building, a processing and a service building.

Although the project has been designed to cater to the requirements of deep sea fishing, it may as well be used by mechanized boats which may fish in shallow inshore and off shore waters. During the first phase of the project 15 trawlers are expected to utilize the harbour. In the second and third phases of development, the harbour will be able to accommodate 50 and 110 trawlers, respectively. The project for the construction of a minor fishing harbour at Digha has recently been sanctioned by the Government of India and preliminary work is now in progress.

With these developments it is hoped that West Bengal will soon occupy a prominent place on the marine fishing map of India.

The marine sector is important to the State not only from the point of view of the vast potential in marine resources but also for the fact that the economic condition of thousands of poor fishermen is linked with it. It is also possible to reduce the deficiency in the fish supply in the State to a considerable extent if marine resources are properly exploited. That the Government

has been putting adequate emphasis on coastal mechanization will be evident from the fact that the total landing of fish in the marine sector increased from 22,000 M.T. in 1979-80 to 28,000 M.T. (actual) in 1981-82.

COASTAL WATERS

The State Government has undertaken a scheme in collaboration with the Marine Products Export Development Authority under the Government of India for conducting a survey of shallow coastal waters adjacent to West Bengal for optimum exploitation of the area. The survey will begin in October, 1982. The State Government has also requested the Centre to hold demonstration of marine fishing methods like

mid-water trawling, long lining and purse seining which are not practised by the fishermen of West Bengal.

With the extension of the exclusive economic zone to a distance of 200 miles from the coastal line it has become necessary for us to undertake schemes for exploitation of the deep sea. The four mexican trawlers owned by the State Fisheries Development Corporation are too inadequate to serve the purpose. The Government may have to consider chartering of vessels from foreign companies or purchase more vessels for optimum exploitation of the area. Meanwhile deep sea fishing trawlers owned by private companies and individuals will be encouraged to fish in this area.

modern technology of brackish-water prawn farming has made it possible to rotate fishery with agriculture without affecting the agricultural production or the soil. The large tract of saline soil spread over an area of 400,000 hectares in the coastal region of West Bengal from Midnapore to Bangladesh provides opportunity for the development of brackishwater prawn and fish farming.

The growing demand for prawn in the international market has prompted many entrepreneurs to start prawn culture particularly that of tiger prawn in recent years and today about 20,000 hectares are used for prawn farming with varied success. Such lopsided development fails to fully utilize the trophic levels of the impounded ecosystem and leads to wastage. The over grazing on some items of natural organism also leads to rivalries and competition for food among the members of the same species. If heavy stocking is done, the condition is further aggravated resulting in cannibalism, parasitic infection and disease. In such a situation the production quality cannot be of a high order and poor growth rate, high mortality and low yield can only be expected.

FISH FARMING IN BRACKISHWATERS OF WEST BENGAL

DR. A. N. GHOSH

Managing Director

State Fisheries Development Corporation, Calcutta

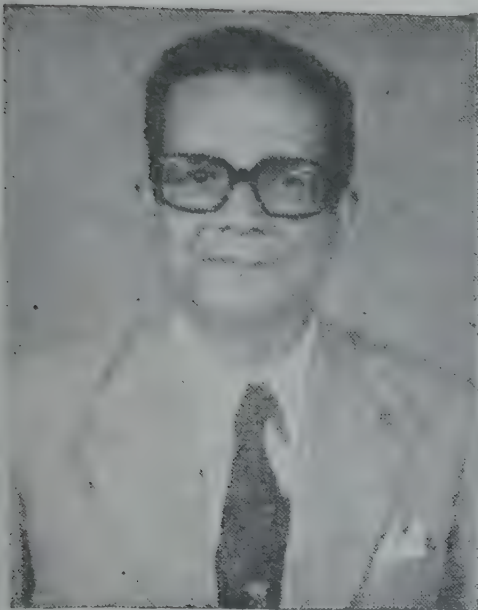
West Bengal is the largest consumer of fish in India. In spite of continuous supply of fish from other states to supplement the local needs the demand appears to be unsatiated. It is therefore essential to increase fish output.

Since the supply from other States appears to have reached a saturation point, West Bengal may have to depend on her own resources to augment the production through scientific methods.

While modern technology is being increasingly used in the existing fisheries, the use of land has little scope for expansion, particularly where the land can be used for agriculture. However,

If this area along with the rest are scientifically developed and managed for balanced utilization of trophic levels of pond ecosystem, it is conservatively estimated that 3 lakh tons of fish for domestic markets and 1.5 lakh tons of prawn for export can be produced.

Though a large number of fin fish and shell fish are found in the estuaries of West Bengal the most compatible ones for polyculture are different species of mullets among fin fish, and tiger and



DR. A. N. GHOSH

white prawn amongst shell fish. Mullet generally feed on

mixed plankton of vegetable and animal origin for faster growth and better yield, while the prawn post larvae are omnivorous feeding on bottom detritus till they are juveniles. The growing prawns prefer animal meat of molluscan origin, other crustaceans, annelids and small forage fish. They resort to cannibalism if sufficient quantity of natural food is not available. Therefore, between them the mullet and prawn will never compete with each other and the trophic levels of the pond ecosystem can be fully utilised.

SEED RESOURCES

The first requirement of such culture is the availability of seed in large quantities for commercial

farming. A number of estuaries like the Houshat, the Saptamukhi, the Thakuran, the Matlah, the Bidya, the Gosaba, the Herebhanga, the Kalindi, the Bidyadahri and the Rajmangal with their interconnection network of tidal canals and creeks, enriched in their nutrient contents by the fallen leaves of the forest vegetation, provide nursery grounds for the early larvae, post larvae, fry and fingerlings of a large variety of prawn and fin-fish. Recent results indicate that fry of cultivable species of fin fishes, can be collected in good quantities from such areas for stocking brackish-water ponds.

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DEVELOP DEEP SEA FISHING AIM AT INDIAN BUILT VESS SAYS CHIDAMBARAM

Q. What is your assessment of the likely impact of the recent international Conference on Deep Sea Fishing held in New Delhi in June 1982?

A. The discussions at the Conference helped in identifying certain points that would require attention. The Conference had not however been able to crystallise either the line of action or the strategy to initiate follow-up action on these points. While the major gain seems to be the generation of an awareness of the problems facing the development of deep sea fishing, so far as the actual developmental process is concerned, I do not expect much to happen in the near future, as no practical approach has been



MR. K. CHIDAMBARAM

Mr. K. Chidambaram needs no introduction. Bedecked by an immaculate crop of snowy hair and endowed with a tranquil dial that requires a thousand storms to show out any discomposure, he registers an indelible impression on the minds of others, through his measured and sapient observations. He is a good listener and is laconic in his replies, which are always weighty and to the point, with every word expressed correctly chosen.

Mr. Chidambaram was the architect of MPEDA. As Officer-on-Special Duty in the Ministry of Commerce, he conceived of the idea, and worked out the draft bill and later was on the job till the bill was passed by the Parliament and approved by the President. He became the first Director of MPEDA.

Mr. Chidambaram commands wide professional as well as social popularity. On crucial issues, particularly those relating to marine fishing and processing of marine products, his counsel is often taken by several governments and fishery enterprises. Known for professional integrity and honesty, he always gives the correct counsel, undeterred by consequences.

Now over 63 years, his grasp over national fisheries situation continues to be as limpet-like as ever. How he manages it is amazing, but he keeps himself up-to-date with the developments in the

formulated. We had heard foreign delegates relating their experiences. This was only educative. One expects that something further should happen. But there are no indications to this effect.

As a follow-up action, no doubt, the Government sent a delegation to Philippine and Indonesia. However, the objectives and the purpose of this delegation and the results of the visit are not

yet known. I do hope that something worthwhile will result out of this visit, in which case this will be for the good of the industry.

Q. Do you subscribe to the idea that deep sea fishing can be developed only when larger houses enter the field in a big way?

A. Larger houses will be able to play a significant role in the

industry as well as in governmental circles on fisheries matters. Very few in India have contacts in professional circles as wide as his, both abroad as well as India.

Mr. Chidambaram, after a long stint as Assistant Director and Deputy Director in the Tamilnadu Fisheries Department, functioned as Assistant Fisheries Development Adviser in Union Department of Food, as Director of Fisheries, Gujarat State, Deputy Fisheries Development Adviser in the Union Departments of Food and Agriculture, Deputy Commissioner (Fisheries) in the Department of Agriculture, and Director, Marine Products Export Development Authority. In between, he was on deputation to the Indian Institute of Foreign Trade. Under his direction at the Institute, a monumental report on marine fisheries with reference to marine products exports, consisting of several volumes, was produced. He also functioned as officer on special duty in the Ministry of Commerce. During this period his achievement was the setting up of MPEDA. He is currently the Chairman and Managing Director of Matsya Sagar Consultancy Services (Pvt) Limited, Madras. He is also one of the Directors on the Board of Management of Gujarat Agro-Marine Products Limited, a Gujarat State government undertaking.

Your editor could get an opportunity of interviewing Mr. Chidambaram recently. The session went as follows:

development of deep sea fishing which is a capital incentive operation, in view of the fact that they have the financial backing and management expertise and organisational support. Small companies can take to deep sea fishing, but it can only be in a limited way, and that too provided that they have the dedication, involvement and managerial support. Whether the industry is developed by larger houses or

smaller parties, the infrastructural facilities required have to be organised effectively by the government, without which the industry cannot develop.

Q. What do you feel about the policies and strategies of the government of India regarding development of fishing in our Exclusive Economic Zone?

A. The policy of the government to permit the chartering of

fishing vessels is one right step in the direction of development of fisheries of our Exclusive Economic Zone. However the implementation of the programme will have to be result-oriented and progress should be seen in a short time. The fishing operations under this programme have to be effectively monitored if it is to be a success.

There seems to be some difficulty in regulating these operations and involving persons who are already in the field in this programme. The policy of permitting joint ventures in deep sea fishing was introduced about 15 years back, but the progress is not much in this sector.

Government should encourage those who are already in the field and have a commitment to it, by giving prior consideration to their applications. Changes in terms and conditions governing charters should be made only when the operational behaviour or experiences of the charterers justify the same and after prior consultation with the industry and after due notification.

Q. What do you think will be a quicker way to introduce the largest number of deep sea fishing vessels in the shortest possible time?

A. Permitting enterprises to charter fishing vessels from other

countries is undoubtedly the quickest way. Clearances for purchase of such vessels including release of loan from SDFC should be faster. While indigenous construction of fishing vessels should be encouraged, the emphasis on this should not be to the detriment of the growth of the industry. We have to develop quickly deep sea fishing first through whatever means possible. Concentration on development of deep sea fishing vessel construction within the country has to come next.

Q. If you agree that there is no policy to bring about the effective administration and management of fishing harbours, can you suggest the steps necessary in this respect?

A. Fishing harbours must be administered by a Fishing Terminal Organisation or Authority with statutory powers to run with the involvement of the various interests like port, customs, coast guard, state fisheries department, electricity board etc. This Authority should know everything that happens at the harbour, particularly about fish landed, quantity of fish sold etc. The authority should ensure a quick turn-round of vessels. The Terminal Authority must have a R.T. station to be in continuous touch with the fishing vessels out at sea. Without this facility it will be impossible for the operators to regulate or direct their fishing activities.

Q. If it becomes possible to introduce 350 deep sea fishing vessels in sixth plan as envisaged, the result will be that a large quantity of fish will have to be marketed. The present approach is to export the entire quantity of fish. Do you think this approach is consistent with national interest?

A. From the point of view additional foreign exchange earnings, the approach to export the fish is to be deemed as in our national interest. However, there is a basic responsibility on the part of the government to keep the national population supplied with fish. The right balance between exports and indigenous supplies has to be arrived at.

Q. Don't you agree that there has been a failure on the part of the government in the matter of organising a national fish marketing grid, without which the main objective of keeping our population supplied with fish remains unrealised, and at the same time the operation of fishing vessels will be heavily dependent on exports? What comment you have on the subject?

A. The question of having a nation-wide cold chain system has been engaging the attention of the government for a long time. The organisation of an internal fish marketing system has to be undertaken simultaneous to the increase in our fishing fleet with reference to the ports of their operation. With increased fish landings from various ports the establishment of marketing network would become a necessity. It is to be expected that this network would materialise soon, starting with certain viable areas. When this is done, the industry will be able to organise supplies of fish in wider internal markets. I believe that the development of internal market for fish will strengthen our position in securing better prices in the export market.

Q. Accumulation of heavy dues from fishing companies is causing grave concern to commercial banks and SDFC. This has also a serious effect on the development of the industry. Can you suggest

some measures to correct the situation?

A. All deep sea fishing vessels operate from specific ports. It should not be difficult for the SDFC to appoint an agent to watch the landings and ensure recoveries from time to time. The expenditure in this regard can be recovered from the parties. The SDFC and the commercial banks shall have an effective control on the industry in this respect.

Q. For introducing new deep sea fishing vessels, fishing companies have to depend on the SDFC for funds. SDFC loans can be obtained only when the party provides interim guarantee for the loan amount, procured from either a State government or from a bank. It is however impossible for medium and small companies to secure these guarantees. Have you any suggestions on this problem?

A. The shipyards should find a way of providing these guarantees. SDFC should also accept hypothecated insurance policies from shipyards as guarantees. The SDFC should work out a system taking into account the peculiar nature of the fishing vessel acquisition and operation.

Q. Can we have your views on the present functioning of the CIFT and the role it can play in the development of deep sea fishing industry?

A. CIFT is not handling at present any problems connected with the deep sea fishing industry, either relating to craft or gear or gear materials. The institute should develop close liaison with the EFP and IFP and initiate research and development programmes for larger fishing craft, including the designing and fabrication of fishing gear and their operation.

The handling of fish landed from such crafts has also to be taken care of.

Q. Do you think that there is urgency for a national policy for fisheries education and training? Are you satisfied with present growth of fisheries colleges under various agricultural universities? No relation seems to exist between CIFE and these colleges.

A. Yes. The fisheries education policy requires reorientation to fit into a pattern for practical application with reference to commercial operations, and their management and importance of specialisation in the different fields of fisheries. There has to be a separate national institute on the lines of Indian Agricultural Research Institute or Forest Research institute. At present there does not seem to be any close coordination between the Central Institute of Fisheries Education and

the fisheries faculties in agricultural universities. Nor is there a uniform recognition of the standards. The entire subject requires a thorough study and effective reorganisation for national benefit with particular reference to the development of fishery industry.

Q. CMFRI, EFP and IFP attend to work complimentary each other, but there is a very little coordination. Consequently the fishing industry does not derive any benefit out of their activities. Have you any comments on this?

A. All these institutes should work together in close coordination for obtaining information and data useful for the various sectors of fishing industry. So much money is spent on fishing vessels by these organisations and all these should lead to tangible benefits to the industry. They should collect data from various vessels,

analyse the same quickly and the results passed on to the fishing industry. If the industry is convinced of the usefulness of the information given, they will definitely provide more data from commercial operations to the institutes for the development of a national approach and improving all their operations. Suggestions in this respect were made several times before, but with no result.

Q. Do you think that joint ventures and charters will ultimately lead to the establishment of a viable deep sea fishing industry? If so, what approach should the government adopt in implementing these programmes.

A. In the present circumstances of increasing operational costs of deep sea fishing vessels, increasing demand for fish in internal and external markets and

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Indian waters abound in fish and Britannia has entered fishing as part of the national policy to organise a more scientific exploitation of resources in future. Catches are landed in seafresh condition and speedily processed to preserve the natural product quality.

The Britannia fleet of 6 trawlers, include two modern 23 metre steel vessels imported from Mexico it is proposed to augment the fleet in a phased manner, and possibilities of entering the field of deep-sea fishing are being explored currently.

Supplementing these efforts at sea is a programme of developing brackish water prawn culture and Britannia is among the pioneers investigating this area. The objective in both cases is to secure the freshest and best quality raw materials.

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OVERSHRIMPING: Myth and Reality

M. K. RAMDAS

First to say in general terms, the large vessel operators, by and large, to always conduct their fishing outside the zone of operations of small mechanised and non-mechanised boats. Their area of operation is thus away from small boats. There are a little over 60 large vessels operating now. Is it conceivable to think that our long coastline of over 6000 km. can sustain only around 60 large vessels? At one time our scientists told us that there were no shrimp after 25 fathoms. However, these vessels have been progressively covering deeper areas, upto 45 fathoms or even more and getting good catches.

According to an estimate drawn up by the Ministry of Agriculture themselves, there was scope for introducing over 100 shrimp trawlers of about 23 m length. P. C. George, B. T. Antony Raja and K. C. George (1977) estimated a total exploitable penaeid shrimp potential in our waters at 1,80,000 tonnes. This was a good estimate although a very conservative one. We are still very far to this figure. Only on this basis, permissions to import combination trawlers with facility for shrimping as well were given in 1977. Yet, the publicity given is that shrimp is over exploited.

We now find that in the case of the trawlers now in operation, a progressive increase in annual landings was being noticed. Take one instance of the operations of the two trawlers of Tamilnadu Fisheries Corporation. Their shrimp

catches in 1978-79 were 33.71 tonnes. In 1979-80 the landings increased to 62.48 tonnes. There was a further increase in 1980-81 to the level of 92.64 tonnes. In 1981-82 in a period of 9 months the landings were 82 tonnes. The same is the case with most of the other enterprises.

The movement to drive through the idea that shrimp are being overfished is spearheaded by the Association of Indian Fishery Industries, an organisation with a handful of members and dominated by larger houses, who have a unique record of failure in the fisheries field. Such a dominated body, the motives of which can only be imagined, has taken upon itself the right to influence our national fisheries policies and the government listens to them, without going into the structure and composition of the body.

The entry of larger houses into the deep sea fishing field is the biggest curse ever spelt on the industry. Their present strategy is to block others from entering the field, using their hand-maid, the Association of Indian Fishery Industries as the tool to accomplish their goal, before the game is up. As long as there was no competition for them, they supported introduction of shrimp trawlers on the ground that with shrimp alone the operations can be economical. Now that they see several others coming in, they have started talking about diversification, only to induce the government to permit them to get fishing vessels

on charter. Their objective is to earn money through charters and invest the same in acquiring vessels, thus avoiding risks in investment. The small entrepreneurs can do this equally well.

In this situation, how does the so called 'Capital intensive nature' come in the way of smaller people to take to deep sea fishing? Larger houses have successfully influenced the government to take a decision to apply guillotine to the 1977 scheme.

The larger houses were responsible for popularising the myth that deep sea fishing, being capital intensive and risky can be undertaken only by them. God alone knows how much risk they will undertake. ITC & E.I.D. Parry closed down their operations unable to take the risks. Tatas are probably continuing only because they made enough money under Thai vessel charters. Regarding high capital requirements, they too want SDFC loans. With SDFC loans, small parties can also be in the industry. Marginal investments can also be made by small entrepreneurs. It does not require a larger house to do so. Regarding managerial capability of larger houses in the fisheries field, the less said the better. Their dismal performance is well known. To explain away and justify failures, they throw blame on the government that they have not been given SDFC loans, not permitted to augment fleet etc. Why should Union Carbide incur

such heavy losses, with a fleet of 14 vessels?

It is true that shrimp landings from mechanised boats show downward trends. But this is not for reasons of depletion. The principal reasons for this are:

POLLUTION

Before one can understand the impact of pollution on shrimp fishery it is essential to know at least the fundamentals of the life cycle of the crustacean. Effluents discharged by chemical and other and lakes are interfering with the traditional feeding grounds. Oil slicks from harbours also affect fishing grounds. The crustacean in its fight for survival moves away to further and deeper waters to escape from pollution.

DIVERSIFICATION

Traditional fishermen of non-mechanised sector have started shifting away from highly seasonal bottom trawl fishing for shrimp to that of Gillnetting. From government and nationalised banks liberal assistance is available for them to purchase good nylon nets etc. Quality fish (existing in mid-water) prices have also sky rocketed to Rs. 15-20 per kg. making it lucrative, with the availability of year round industries into rivers, estuaries fishing. Even a large number of 10-meter mechanised vessels have been modified for gillnetting or have changed their fishing gear for trawling for fish. Pair trawling is also becoming popular in areas like Tuticorin etc.

KERALA PECULIARITY

To the view that there is over-fishing within 30 fathoms especially along Kerala, there is a specific reason for that. Kerala has between 5000 to 6000 small vessels below 10 metres, fishing in a very small area. The reason for this imbalance in growth is due to the fact that a lot of West Asian money



flowed into Kerala from overseas to their folks at home. Many of the beneficiaries of the West Asian boom belong to semi-skilled and labour class people. Many of them naturally turned to fishing business which they thought did not need much skill and the fishing industry thus attracted a lot of investment in the small trawler field. It needed no licences. Local builders and equipment are available so also the crew. Running of the boats is left in the hands of hired crew.

These vessels no wonder come up with very poor performance. In contrast, the performance of small vessels in Tuticorin area which are owned and operated mostly by the trained hands themselves, is found to very impressive.

1982 is the year of productivity. This is the most inappropriate year for the government to apply guillotine on 1977 scheme, falling into the trap of larger houses, believing the bogey of capital intensive and high risk operations', and indulge in social injustice by preferring larger houses to develop a monopoly in the field. Show them the thumb, they will devour the entire body. Give them an opening to avail of SDFC loans, it can be taken for granted that there will be no place for others in the Industry.

The wisest policy for the government will be, in tune with the nation's objective to do social justice and move towards removing inequalities, to be liberal and encourage small parties by keeping the window open for them to accomplish imports under the 1977 scheme and also encourage them in getting vessels on charter, with such terms and conditions to govern the activity as the government deems appropriate.

Contd. from p. 35

Interview with Chidambaram

also considering the availability of surplus deep sea fishing vessels in certain countries, it is of utmost urgency to give a push in a positive direction for the establishment of joint ventures and chartering of fishing vessels. We are already late in the field. If the present anxiety to give a fillip to joint ventures and chartering of fishing vessels was there 10 years back, by now we would have made much progress. Even now we can take advantage of the expertise, equipment and techniques available elsewhere for strengthening our fishing fleet through the programmes of joint venture and chartering.

Unlawful Fishing Barriers Orissa Fishermen Threaten Andhra Boats

Seasonal migrations of mechanised and the operation of a large fishing boats from Andhra to number of boats enabled them to Paradeep in Orissa started in 1972. secure raw material. In fact, the The processors in Orissa encouraged processors and certain intermediaries this migration for the reason entered into tie-up arrangements that the local effort was inadequate with the owners of the Andhra

boats. This practice continues. The processors/intermediaries come down to Visakhapatnam and pay advances to the boat owners with the understanding that the boats would come to Paradeep in September. The owners agree to supply oil, ice, fresh water etc. and also accommodation to the operators. The system has become well established.

Along side the continuation of the above system, in the past 7 or 8 years, several mechanised boats have been introduced by entrepreneurs in Orissa. This development has led to frictions between local boat operators and the migrant Andhra boat operators. The Andhra boats were not allowed to operate from Paradeep. Some of the Andhra operators were stabbed. On account of this and the lack of protection, Andhra boats stopped going to Paradeep since 1977.

In 1979, a few Andhra boat operators made efforts to operate their boats from Astarang, a place located at the entrance of Devi river. These operations proved to be successful. Since, then, some Andhra boats have been moving seasonally to Astarang every year. The system that has developed is that Orissa entrepreneurs visit Visakhapatnam/Kakinada in the month of July. They select the boats and pay advances to the owners and enter into agreements. Under these the Orissa party will arrange supply of diesel oil and ice for the boats and provide accommodation to the operators. For the services rendered, the Orissa party will be paid by the Andhra boat owner 10-15% of the gross revenue, and 10% commission on cost of diesel oil, ice etc. No mechanised boats of Orissa operate from Astarang.

In spite of good prawn landings at Paradeep, it is stated that

30

RECIPIENT'S NAME AND ADDRESS:

CAPT. Venkateswarulu
S/o. Bala Marines
Chinamyari Street
Visakhapatnam
A.P.

SENDER'S NAME AND ADDRESS:

Paradeep Boat Owners

10082

Captain

Don't try to bring Andhra
boats to fishing near to
Assuram. Your Gorge Maize
and all boats will be finished
this time. This will be the
end of Andhra business this year.

Yours

Paradip Boat Owners

Pamphlet 101

1988

repayments to banks by the owners have been unsatisfactory. The Orissa boat owners give the plea that fishing is bad. But the bankers have now noticed that the Andhra boats are harvesting good shrimp crops and the returns are also sizeable. On this consideration, it is stated that the bankers are pressurising the Orissa parties to pay the dues.

Seeing this, the Orissa owners have now sent a warning letter to Andhra fishermen. This in original is published here. The

Andhra fishermen are now in a fix. The Orissa parties are already at Visakhapatnam/Kakinada to sign agreements. To sign or not to sign is their problem.

Under existing law in Orissa there are no restrictions for fishing along the coastline of Orissa by fishermen from other areas.

It is of utmost urgency for the Government of A.P. to arrange a high level meeting with the authorities in Orissa to resolve the matter.

Although the problem of attack of sharks on human being is known over decades, this received deep attention especially in the years of world wars. Though voluminous literature is available on shark's attack and survival from different parts of the world, not much is known from Indian region, especially in regard to shark repellents and its usage.

In recent years, a threatening problem that was focused to our attention is that in areas like Gulf of Mannar, Kutch, and off coast of Vizag, sharks attack in groups on trawl nets making fishing operations highly risky in addition to causing heavy damage to trawl nets and catches of high valued foreign exchange earners like prawns. At times, their approach to the net is in such very close vicinity hauling the catches on board becomes almost impossible.

Therefore, to have a practical solution this problem was referred to various experts in tropical fishing to have their opinion which is highlighted in this note, besides, critically reviewing the responses of sharks to different repellents, with reference to our field trials.

There are a variety of repellents of sharks which are mainly classified as chemical and biological repellents.

CHEMICAL REPELLENTS

David Baldrige (1969) conducted series of experiments and reported different behavioural pattern of sharks to a variety of chemicals as detailed below.

STRYCHNINE NITRATE

In dilute solutions (0.003-0.06mm) and between 24 to 26°C degree water temperature, the responses of lemon sharks were observed

How to keep sharks away when they are not needed

G. SANTIHANAKRISHNAN

Attacks by sharks in groups on fishing trawl nets were reported from Gulf of Mannar, Kutch and off coast of Vizag, the potential areas for sharks in India. As a practical solution to this problem it was suggested to intensify shark fishing so as to reduce the number of sharks in the immediate vicinity, to use biological repellents of sharks such as decomposed shark meat, and various other chemical repellents that were developed and used in getting rid of sharks attacks on human beings.

as hypersensitivity to touch and sound or to any vibrations generated when the walls of the tank or ground struck by a person in the vicinity. When sharks were exposed to higher concentration, rapid erratic swimming movements were observed. Response to touch or mechanical shocks in this state resulted in strong contraction of muscles and the gill slits became tightly closed. Then there was steady increase in the frequency of muscular contraction and followed by wild erratic swimming movements and finally they died in a state of rigidity.

SODIUM CYANIDE

Response to higher concentrations of sodium cyanide (0.05 - 10 mg/l) was observed as quick and erratic movements on the surface, keeping the snout out of water as if attempting to climb the wall. These initial excited movements were followed by slow and undirected movements, and resting at the bottom for longer intervals but without visible gill movements. At the final phase, sharks showed no response to touch or even when turned on its sides and back and this was considered as incapacitation stage.

QUINALDINE

When sharks were exposed to 90% solution of quinaldine, initial

notable changes in the behaviour were excited and erratic movements, as if to avoid the area by raising the snout out of water.

Following this was the stage of depression by lethargic movements, and thereafter they entered the phase of narcosis.

SANDOZ (MS - 222)

Behavioural responses of sharks when exposed to this chemical were observed as similar to the responses observed with Quinaldine.

REPELLENTS FROM DYES

In addition to the above, various other chemicals, containing dyes in major proportion were also used widely in the war year of 1943. Suggestion of using dyes had its emergence due to its similarity to ink secretions by octopus, squids and sea hare, as their protective device, from attack of predators. The dyes that are in use are mainly aniline dyes, such as Nigrosine and Induline. Richard Tuve (1973) reported that the chemicals that are mixed along with the dyes are such as maleic acid, copper sulphate, copper acetate etc. It was further identified that the repellent efficiency of such chemicals depended upon the suitable selection and percentage combination of dyes and chemicals. Based on such varied combination, three well

known dye repellents for shark attacks on human beings, as listed below, were developed and widely used during world wars.

SEA MARKER

This is a yellow fluorescent dye which was identified as a successful repellent of sharks and was very widely used by the army in 1943 (Richard Tuve, 1973).

SHARK CHASER

This standard chemical had its wide usage by US Navy in war years, this contained a mixture of nigrosine dye (80%) and copper acetate (20%). But at present this is considered no longer as an effective repellent of sharks as reported by Bernard (1976).

SHARK SCREEN

This blocks the view as a screen by the dark cloudy dye stuff such as nigrosine. This proved to be very effective as a passive anti-shark system. But in present time, it appears there is no more commercial production, due to difference of opinion on working efficiency of this as that of shark chaser.

BIOLOGICAL REPELLENTS

It is known that sharks show repulsive behaviour to two biological materials, such as milky



secretions of fishes and decomposed shark meat.

MILKY SECRETION OF SOLE FISHES

Bernard (1981) informed that a very promising repellent reaction was identified from the milky secretions produced by Red Sea and Indian Ocean flat fish called Moses sole (*Paradachirus marmoratus*). But this product is yet to be made available on commercial scale.

DECOMPOSED SHARK MEAT

It was reported from the field observations by the fishermen in Florida that if for some reason a shark died on an unattended hook and line, no further fishing could be possible in that area. It was inferred from the above, that some substance emitted by the decomposing parts of the body of the shark drove other sharks from that vicinity. This is now corroborated by a series of experiments conducted in Woods Hole Laboratory, with shark meat in various stages of decomposition, thus confirming that decomposed shark meat itself serves as an effective repellent for sharks. On laboratory chemical analysis, it was identified that the suspected substance that is emitted from the decomposing shark

meat was ammonium acetate, which is the principal substance serving as a repellent (Richard Tuve, 1973).

OBSERVATIONS

Although it is known that many chemicals/dyes are used as effective repellents, no attempt has been made in using the same to prevent attack of sharks while fishing, as (a) no chemical is readily available and (b) huge quantum of chemicals that may be required considering the area of operation. Therefore, studies have been conducted on the use of biological repellents.

Considering the reaction of sharks to decomposed meat as reported above, three experimental field trials were carried out off the coast of Vizag with regular trawl net fishing. In the first trial, two shark pieces weighing 1.5 kg. and 1.72 kg. respectively, were tied with the cod end of the net. Sharks out of which pieces were taken were caught on previous night, and the time span was 6 to 8 hours from the time of catch.

In the second trial, two shark pieces of about the same weight, but kept in ice for 24 hours after landing were used. Sharks caught 48 hours earlier were used for the third trial of fishing.

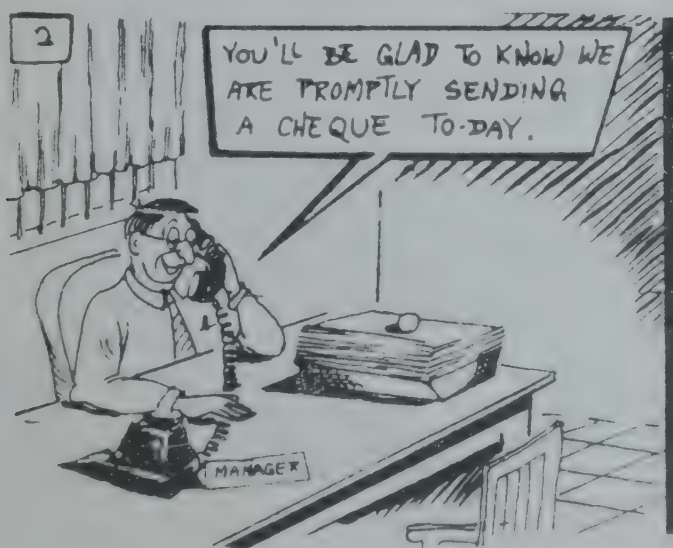
Of these three trials, no significant movements of sharks were observed in the first trial, though it was noticed that at times they appeared to be in the vicinity especially at the time of hauling. However there were no attacks on nets.

No movements of sharks were observed in the nearby vicinity of the net of at least about 15 meter range in the 2nd and 3rd trial fishing operations, though the presence of sharks were noticed in that area of fishing.

Although David Baldrige (1969) proved that all the above cited chemicals play a very significant role as 'repellent' under experimental conditions, determining their efficiency as shark repellent under natural conditions, especially in terms of quantitative application still needs further investigation. Similarly, though variety of dyes were used as repellents at the time of world wars, their effectiveness became highly questionable in recent years as reported by Bernard (1976).

Further, the reaction of other fishes, if the dyes and other repellents are used in trawl net operation, is not yet known. Therefore, it may be preferable to

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Massive Fish Seed production in Pens. Major experiment under way at Tungabhadra Dam

V. SWAMINATHAN & G. S. SINGIT

Fish culture is generally undertaken in either stagnant waters or where the need for rate of renewal of water is very low. This does not, however, mean that cultivation of fish in flowing waters, or where there is abundant water, is not unknown, although, admittedly, such a process is more difficult, considering that controlled conditions are more difficult to achieve in such cases. On the other hand, there could be definite advantages in such a form of culture, which would facilitate a more dense stocking rate per unit area considering that the incoming fresh water will bring in abundant supply of oxygen, which will flush out the byproducts of the fish population, which will otherwise inhibit their growth in stagnant waters.

The practice of fish culture in cages located in running waters for table purposes is common in the Indopacific region, particularly in Japan, Kampuchia and Indonesia. However, raising lakhs and lakhs of quality fish seed in cages for purposes of stocking in large water spreads is not known to have been adopted successfully so far, atleast in India.

PENS FOR SEED PRODUCTION

Very recently, the technique of cage culture, using synthetic cloth of the floating type, was taken



PENS IN TUNGABHADRA RESERVOIR

up by the Central Inland Fisheries Research Institute in Sankey Tank at Bangalore for rearing fish seed. Such work is also known to have been attempted in Madhya Pradesh. An enlarged version of this kind has been attempted for the first time in Karnataka in the Tungabhadra Reservoir by the Tungabhadra Board, which has the pride of having the best fish farm in the Southern Region, founded in 1962-63. The culture of lakhs of major carp fish seed on the periphery of the Tungabhadra Reservoir, by using pen culture method, has been taken up on an experimental basis in August, 1982, with a view to ultimately stocking the reared fish in the reservoir itself.

Tungabhadra Reservoir, with a water spread of 146 sq. miles (37,814 hectares) offers rich potential for large scale fish production. Fish production from the reservoir, which was a mere 24 tonnes in the year 1954-55, has gone upto 4200 tonnes in the year 1981-82, but this can be further stepped up by increased stocking with major carps. The fishery from the reservoir now consists mainly of cat fish, minor carps, minnows, etc. The average stocking rate of fingerlings in the reservoir per hectare is now around 10 to 15 numbers, which can go up to 250.

The development of fisheries of the Tungabhadra Reservoir, with sustained stocking of major carp seed, so as to improve the quality of fish landed and to give a

boost to the economy of fisherfolk of this region, has recently been assigned priority by the Tungabhadra Board. For meeting the increased demand for fish seed, the existing infrastructure at the fish farm in Tungabhadra Dam is not enough, since the farm has to supply about 3 crores of quality seed to both Karnataka and Andhra Pradesh annually for rearing purposes, leaving very little

per hectare. Apart from the fact that suitable land is not available for additional rearing space, the capital investment needed for such a purpose will be stupendous.

It is in the above context that, instead of thinking of increasing the permanent facilities now available in the fish farm, the Tungabhadra Board decided to go in for pen culture along the

amenable for effective nursery management and collection of fish seed.

PEN STRUCTURE

A main outer pen, 300 metres long and 4 hectares in area, has been constructed at the site, cutting off the main bay from the site of the experiment. The pen is made up of casuarina poles 6' high, fixed at intervals of about 1.2 metres (4 feet), firmly secured inside the pit and woven with whole bamboos, to an average height of about 1 meter (3 feet). When the Reservoir reaches its full level (1633 feet) and water comes into the pen, there will still be a free board of more than one foot (30 to 40 cms). The entire length is trenched to a depth of 20 cms, and covered with split bamboo mats in pieces. It acts as a barrier against wind and wave action, apart from minimising entry of unwanted fish into the rearing space.

The inner pen is square in shape, with a dimension of 70 m x 70 m, with an area of 4900 sq. meters. It has an average water column of 100 to 120 cms. Three more squares of sizes 50 m x 50 m, 30 m x 30 m and 10 m x 10 m, have been fabricated inside the outer square of 70 m x 70 m. The outer wall of the inner pen is fabricated with split palm leaf, firmly supported by casuarina poles and bamboos. The entire pen is further covered with monofilament fabric of 30 mesh, which is expected to prevent entry of unwanted fish, eggs and spawn, as also the escapement of the 3 day old hatchlings of major carps taken up for rearing. The three inner smaller squares have been covered with date palm (toddy) leaf mats. The inner pen (4900 sq. meters) is partitioned into 24 chambers of about 200 sq. meters,



TEST HAUL FRY: TEST HAUL OF CARP FRY FROM A PEN

fish seed for stocking in the Tungabhadra Reservoir.

ACUTE SEED NEEDS

The Tungabhadra Board established the major carp seed production centre at Tungabhadra Dam in the year 1962-63. A Jar Hatchery, the first of its kind in Karnataka, was added in May, 1982 for increased fish seed production. Even so, there is an acute shortage of fish nursery space for rearing fish seed to the desired size of 8 to 12 cms, which would take upto 3 to 4 months. A modest estimate places the seed material required to stock the reservoir at 95 lakh fingerlings, adopting the norm of 250 fingerlings

per hectare. Apart from the fact that suitable land is not available for additional rearing space, the capital investment needed for such a purpose will be stupendous. It is in the above context that, instead of thinking of increasing the permanent facilities now available in the fish farm, the Tungabhadra Board decided to go in for pen culture along the foreshore of the reservoir, on the lines of a technique adopted by the Central Inland Fisheries Research Institute in the Poongar swamp adjoining Bhavanisagar Dam in Tamil Nadu. Survey work to locate a suitable site for constructing the pen for rearing hatchlings was taken up towards the end of 1981-82. A suitable site was located near Hampasagar Bay, 67 kms from Tungabhadra Dam and 22 kms from Hagari-bommanahalli. The site has a gentle slope with red sandy soil and water would remain there for a period of 3 to 4 months between August and November each year. The site is well protected from wind action by some small hillocks surrounding the area, and is

with a central chamber of 100 sq meters. These partitions are expected to minimise wave action inside the pen, as also facilitate collection of seed and other nursery practices. Small ladders have been fixed to cross from one chamber to another.

Before the reservoir water touched the pen, the materials

used were treated with chemicals like common salt, metacid, BHC etc. to give it protection against white ants (termites). The erection of outer and inner pens commenced on 26-6-1982 and was completed by 4.8.1982.

The initial cost of the pen is as under:

Sl. No.	PARTICULARS	NUMBER PROCURED	AMOUNT Rs.
1.	Bamboo poles	9000 (3.5 to 4 meters)	15,480
2.	Casuarina poles	416 (4 meters)	6,556
3.	Date palm main vein split mats	425 (6' x 2')	3,500
4.	Split bamboo mats	210 (5½' x 4')	4,147
5.	Date palm (toddy) leaf mats	525 (60" x 40")	1,192
6.	Monofilament fabric (30 mesh)	660 meters	3,800
7.	Coir rope	20 bundles	512
8.	Labour charges	(445 mandays)	2,895
9.	Miscellaneous expenditure		1,287
	Total:		39,469
		(say)	40,000

The materials used for erection of fish pen, while not being expensive, are still expected to last for atleast three years, if not more. Once the efficacy of the material used is ascertained by experience, it should be possible

to reduce the cost and increase their utility. It is anticipated that the present pen can be used for the next two years, with maintenance on the following scale:

Sl. No.	PARTICULARS	Cost Rs.
1.	Casuarina and bamboo poles for replacement	3,000
2.	Replacement of monofilament	3,000
3.	Replacement of split bamboo mats	1,000
4.	Renewal of date palm (toddy) leaf mats	1,500
5.	Miscellaneous expenditure	1,500
6.	Labour charges	3,000
		13,000

Thus, with a further investment of Rs. 20,000 in the next two years the pen can be used for a total period of 3 years. Taking into account the initial investment of Rs. 40,000, the average cost per annum will work out to Rs. 22,000. At this cost, it is expected to rear atleast 8 lakhs nos of 3 to 4 month old fingerlings for stocking purposes annually (assuming a moderate survival rate of 20 per cent the number of hatchlings taken up for rearing being 40 lakhs).

The sale price structure at the Tungabhadra Fish Farm, at present, is as follows:

Fish spawn ... Rs. 1,500 per lakh
Fingerlings ... Rs. 15,000 per lakh

Thus, there is a margin of Rs. 13,500 per lakh of fingerlings. In short, with an expenditure of Rs. 22,000 per annum, the Tungabhadra Board can enhance its earnings by Rs. 1,08,000, or stock equivalent value of fish in the reservoir. After deducting the feed cost of about Rs. 2,000 and wages of Rs. 4,000 for the 4 month period, there will still be a saving of over one lakh of rupees. This should be sufficient incentive to go in for pen culture on a larger scale, if the present experiment proves successful. Further, the constraints now imposed on the production of more than 3 to 4 crores of hatchlings in the fish farm will be removed, if larger use of pens is made feasible.

It may be mentioned here that, while a 10 m x 10 m x 1 m cement cistern will cost Rs. 20,000 and an equivalent earthen nursery Rs. 5,000 a bamboo pen of the same size costs only Rs. 800 and it can last 3 years, with minimal maintainance. For large scale operations during short periods of carp spawning.

the pen technique should, therefore, become popular and economic.

PEN OPERATIONS

The Tungabhadra reservoir touched the level of 1630 feet on 5.8.1982. From that day, nursery practices like liming, manuring with cattledung, eradication of insects, application of groundnut oil cake, chemical manures, dragging of inner compartments etc. were briskly attended to and the inner pen got ready for receiving the major carp spawn. The first stocking of major carp spawn was done on 13.8.1982. The introduction of 40 lakh spawn was completed by 23.8.1982. All the 25 compartments were used for stocking. The species stocked were rohu (13.50 lakhs), mrigal (25.75 lakhs) and silver carp (0.70 lakh). Catla spawn could not be stocked as catla breeding had stopped by the last week of

July, 1982. Apart from plankton organisms that have grown well in the pen, the spawns have been fed with supplementary feed like rice bran and groundnut oil cake powder in 1 : 1 ratio. Periodic chemical manuring was also continued.

The studies on hydro biological features have been taken up in close association with the unit of the Central Inland Fisheries Research Institute at Bangalore. At present, the experiment is progressing well. The merits and demerits can be discussed only when the experiment is completed. If this experiment proves successful, as it is expected it would, a few more pens could be erected in a phased manner in the next 2 or 3 years, for increased seed stocking which will, in turn, enrich the Tungabhadra Reservoir, benefiting everyone.

8. Exploitation of squid and cuttle fish resources is at present confined to a depth of about
a) 55 m b) 45 m c) 50 m
9. The leading state in Cephalopod production is
a) Tamilnadu b) Kerala
c) Gujarat
10. Major part of Cephalopod landing in India comes from
a) gillnets b) trawl net
c) shore-seines
11. Oceanic Cephalopod resources of the Indian ocean are
a) exploited by India
b) not exploited by India
c) partly exploited by India
12. The most abundant squid in Indian oceanic water is
a) Symplectoteuthis oualaniensis
b) Sepioteuthis lessoniana
c) Lolioleus investigatoris
13. 'Black ball' is a term applied for
a) solid mass of live fish, particularly tuna, under water
b) Massive planktonic growth at one spot
c) a thick shoal of mackerels

4DIZ

1. Deep Sea Fishing Section, Bombay, (presently Exploratory Fishes Project) was established in
a) September 1948 b) October 1946 c) October 1947
2. The first vessel commissioned by the Exploratory Fisheries Project (erstwhile Deep Sea Fishing Station) was
a) Meena b) Meena bharati
c) Taiyo Maru
3. The Exploratory Fisheries Project has
a) 14 bases b) 11 bases
c) 12 bases
4. The present fleet strength of Exploratory Fisheries Project is
a) 20 vessels b) 28 vessels
c) 26 vessels
5. The largest vessel in the fishing fleet of Exploratory Fisheries Project is
a) Matsya Shikari
b) Matsya Nireekshani
c) Matsya Darshini
6. During 1981-82, under the Exploratory Fisheries Project, largest no. of fishing hours were put in by
a) Matsya Varshini- from Bombay/Portbandar
b) Meena Saudagar from Tuticorin
c) Meena Suchetak from Cochin
7. During 1981-82, under the Exploratory Fisheries Project, the lowest number of Fishing hours were put in by
a) Meena Prayag from Port Blair
b) Matsya Harini from Cochin
c) Matsya Vigyani from Calcutta

Answers to Fishermen's Jumble

Words: ALBACORE, HYBRID, DOCK, SEINE

Solution: SHIRK

q (01) 'c (6) 'q (8) 'q (7) 'a (9)
'q (5) 'c (4) 'd (3) 'a (2) 'q (1)
a (81) 'a (71) 'q (11)

: znuh to srewsu

Community organisation for fisherwomen Training course concludes

V. KRISHNASWAMI,

Our Madras Representative

A ten-week training course on Community Organisation for fisherwomen concluded in Madras on Sept 17, 1982. The valedictory function was held in the precincts of the Directorate of Fisheries, Madras. The course was organised by the Fisheries Department of the Tamil Nadu Government and the Bay of Bengal Programme (BOBP). The 23 fisherwomen (20 of them from Chengalpattu and 3 from Tamilnadu) who underwent the course were presented with certificates of successful completion of the course, by the Commissioner and Secretary to the Department of Fisheries and Forests, Government of Tamilnadu), Mr. S. Srinivasan.

The course was held in several spells in order not to wrench the women away from their homes for a long time.

The Director of Fisheries Mr. V. Sankarasubbaiyan, at the outset of the valedictory function welcomed Mr. Srinivasan and Mr. L.G. Engvall, Programme Director of FAO/BOBP. He said that FAO/BOBP had taken up a number of development programmes such as introduction of beach landing crafts, pair trawling, aquaculture and extension programme for improving the socio-economic status of small scale fishermen and women. He expressed the gratitude of his department and the fishermen to the BOBP for arranging the training course for fisherwomen

which would go on a long way in improving the lot of their villages. He also said it was the good fortune of fisherfolk that Mr. Srinivasan was a keen advocate for the development of fishing villages, and since women were the key for the upliftment of a family, he believed that the development would be faster and enduring through womenfolk.

Mr. Engvall, Programme Director FAO/BOBP said that the progressive approach of the Fisheries Department with foresight to ameliorate the lot of fishing villages through fisherwomen's extension programme and fisherwomen's training course was something which gave him and his colleagues immense happiness. He said that the fisheries

department was always having a close co-ordination with FAO/BOBP in implementing such programmes. He said that the training was arranged in spells so that the fisherwomen need not be away from their homes for a long time. The trainees, he said, had shown great interest, enthusiasm and application of mind while participating in the programme. He was confident that the fisheries department would carry on regular follow-up work. He advised the trainees to utilise what was learnt for the benefit of fisher villages.

Mr. Srinivasan, after presenting the certificates to the trainees, invited one of the participants to narrate their reaction to the course. One Mrs. Shantha explained in



MR. ENGVALL, CHIEF OF FAO/BOBP PROJECT ADDRESSING FISHERWOMEN EXTENSION TRAINEES

expressive terms what the trainees had learnt on Community Organisation, schemes implemented by different government departments and how the schemes would be useful to the villages. She also stressed the role of women in the integrated development of fishing villages.

is primarily intended to make the villagers understand their village better, create an awareness among them of their needs, and teach methods to achieve a better life in their villages. It will enable women to gain confidence in themselves, help participation in the implementation of development

government schemes implemented by the state fisheries department and other departments and non-government organisations for the benefit of fishing communities. Extension 5. Acquisition of skill for leadership and group organisation.

The methodology adopted for this training course was through group discussions, case studies, film shows, slides, fly charts, demonstrations and field visits. This kind of participation method adopted during the course has a good impact on the trainees and helped them share their views and experience with each other. The trainees consisted of Community Organisers from voluntary organisations and extension officials from the fisheries department, Government officials from related departments and bank managers.

These trainees on completion of their training are expected to be back in their respective villages to carry out their work. Great awareness and interest have been created in the minds of the trainees to go and work in their villages enthusiastically. The Fisheries Department and BOBP will regulate the follow-up work by visiting the villages regularly having monthly meetings to assist the trainees in initiating development programmes in their villages.



MR. SRINIVASAN PRESENTING CERTIFICATES TO THE FISHERWOMEN EXTENSION TRAINEES

Mr. Srinivasan in his concluding address said that the course had not ended but it was just a good beginning for working in fishing villages. He assured that the Government would come forward with other programmes which would help the fisher families.

Mrs. Freda Chandrasekaran, Assistant Director of Fisheries (Fisherwomen's Extension Service) proposed a vote of thanks.

USEFULNESS OF EXTENSION SERVICE

Fisherwomen's Extension service is essential as it will enable the penetration of governmental programmes for the development of fishing villages to the weaker sections in fishing communities. Extension Service

programme of villages and contribute to achieving a better community life. To achieve these objectives, training of villagers and field workers has been planned by government officials.

The training course of ten weeks was split into four spells. The training was divided into five units and the contents of each training unit were
Extension 1. Community Organisation:- to create awareness of the present status and constraints of fishing community
Extension 2. Present fish handling practices and provision of skills for improved handling methods.
Extension 3. Better home management:- This includes hygiene, health and nutrition.
Extension 4. Introduction to

APPROVAL GRANTED FOR FISHING HARBOUR:

The Centre has approved the proposal of the Tamil Nadu Government for the construction of a fishing harbour at Pazhayar village in Thanjavur district at a total cost of Rs. 67.32 lakhs.

The project, the cost of which will be shared equally by the State and Union Governments, will be taken up for implementation shortly by the State Government.

Plight of Bareilly (U.P.) Fishermen

DR. A.P. TYAGI & MISS RANJANA SAXENA

The Field Investigation Bureau (Northern India) of Fishing Chimes investigated a case of undue harassment and inhuman conditions meted to Bareilly (U.P.) Fishermen. A fishermen Shafi, requested Dr. A.P. Tyagi for the help and the team moved in.

Bareilly, besides being famous for the traditional Surma is the regional head quarters of Rohilkhand Division and occupies an important position on the strategic map of India. According to a rough estimate, Bareilly district has 5000 fishermen. Except for one or two big contractors among the fishermen, their condition is pitiable. It is not the scarcity of fish, but the Jewish behaviour of one Sajjad Hussain Shah is mainly responsible for the plight of fishermen community, it is understood.

The daily average arrivals in the Bareilly fish market is 80 Qtls. (65 Qtls. from Nanaksagar Dam and 15 Qtls. from ponds and rivers) which is not bad. The painful part of the story is that on every sale of fish worth Rs. 50/-, the poor fishermen have to part with 10% of the earning as Shah Saheb's commission.

The history of Bareilly Fish Market is 80 years old and for the last 65 years Sajjad Hussain Shah is the self styled king of the market. He grabbed the land on which the market is located on the pretext of being a custodian of a grave. The sanitary conditions in the market are extremely poor. The damp soil, littered with discarded skin, bones and viscera acts as a breeding ground for the microbes. When the poor

fishermen ask for any facilities, they are harassed and even beaten by the gangmen of Sajjad Hussain. The fishermen have knocked the door of administration a number of times, but all in vain. The past U.P. Fisheries Minister, Mr. Bhanu Pratap Singh though hailing from

Bareilly town, could not do anything to end the suffering of fishermen.

Fishing Chimes urges the Government of Uttar Pradesh to take immediate steps to curb the exploitation of Bareilly fishermen.

NEWSLETTER FROM KARNATAKA

FISH MARKET BUILDING AT RAICHUR CITY



GATHERING AT THE TIME OF RELEASE OF FISH FINGERLINGS INTO AMTALAB TANK RAICHUR CITY
Sitting L to R: K. B. HANUMANTHA RAO, SR. ASST. DIRECTOR OF FISHERIES, RAICHUR, B. V. DESAI, M.P., SUDHINDRA RAO KASBE, MIN. FOR MARKETING AND MUZARAI, GOVT. OF KARNATAKA, VINAYAKUMAR, DY. COMMISSIONER, RAICHUR, PARASUMAL SUKHANI, PRESIDENT, CMC, RAICHUR, ANJANEYULU, CONGRESS (I) PRESIDENT, RAICHUR, HANUMANTHAPPA PRESIDENT, F.C.S. RAICHUR

Sri Sudhindra Rao Kasbe, Minister of State for Marketing and Muzarai, Government of Karnataka inaugurate the new fish market

building constructed by City Municipal Council, Raichur on 15 August 1982. The building contains 7 Stalls with water supply



**NEW FISH MARKET BLDG. AT RAICHUR CITY,
INAUGURATED BY SRI SUDHINDRA RAO KASBE,
MINISTER FOR MARKETING AND MUZARAI,
GOVT. OF KARNATAKA**

and electricity. The Department of Fisheries has provided an assistance of Rs. 0.50 lakhs to City Municipal Council, Raichur, of which 50% is the subsidy.

The Minister emphasised the need for such markets and also announced that the government is going to provide shortly a cold storage at an estimated cost of

Rs. 2.00 Lakhs at regulated market yard, Raichur, so that people can preserve their perishable articles by making use of the facilities.

He also stressed the need to take up inland fisheries development in a big way. He added that this will not only produce protein food at cheaper rate but also will provide sizeable income to farmers. Mr. Parasumal Sukhani, President, City Municipal Council, Raichur, presided over the function. Mr. B.V. Desai, M.P. and Mr. Vinaya Kumar, Deputy Commissioner, Raichur were among the Chief guests Mr. K.B. Hanumantha Rao, Senior Assistant Director of Fisheries, welcomed the gathering.

MINISTER RELEASES FISH FINGERLINGS INTO AMTALAB TANK IN RAICHUR

At another function organised by Gangamatha Fishermen Co-operative Society Ltd., Raichur and Department of Fisheries, on 15 August 1982, Sri Sudhindra Rao Kasbe, Minister of State for Marketing and Muzarai, Government of Karnataka, released major carp fingerlings into Amtalab Tank. This tank which was yielding revenue of Rs. 0.50 lakh per year to Fisheries Department, has been recently handed over to the above Society on lease basis.

The tank has about 40 hectares of water spread and located in the heart of the City. Catla and silver carps have attained 3 and 2½ kg. respectively per year and the tank found to be very productive. Those present on the occasion were Mr. Parasumal Sukhani, President City Municipal Council, Mr. B.V. Desai, M.P. Mr. Anjaneyulu Congress (I) President and Mr. Hanumanthappa, President. Fisheries Co-operative Society Raichur proposed vote of thanks.

**TOP TWENTY EXPORTERS OF
FROZEN FROG LEGS FROM
INDIA IN 1981-82 RANKED ON
THE BASIS OF VALUE OF THEIR
1981-1982 PERFORMANCE**

RANK	NAME
1.	M/s. Overseas Marine Products Madras, Tamilnadu
2.	M/s. Peninsular Shore Fisheries Madras, Tamilnadu
3.	M/s. Ravi Fisheries P. Ltd. Bombay, Maharashtra
4.	M/s. Costa Foods Alleppey, Kerala
5.	M/s. Topper Exports Madras, Tamilnadu
6.	M/s. Veeteejay Exports P. Ltd., Cochin, Kerala
7.	M/s. Pooppally Foods Alleppey, Kerala
8.	M/s. Sawant Fisheries P. Ltd Bombay, Maharashtra
9.	M/s. Regina Sea Foods Cochin, Kerala
10.	M/s Kerala Food Packers Alleppey, Kerala
11.	M/s. East Coast Fisheries Madras, Tamilnadu
12.	M/s. Karthika Fisheries Cochin, Kerala
13.	M/s. Nomco Exports Alleppey, Kerala
14.	M/s. Bengal Star Fisheries Madras, Tamilnadu
15.	M/s. Aqua Food Products Madras, Tamilnadu
16.	M/s. Cochin Company P. Ltd. Cochin, Kerala
17.	M/s. Konkan Seafoods Ltd. Bombay, Maharashtra
18.	M/s. Patel International Bombay, Maharashtra
19.	M/s. Anupama Seafood Exports Cochin, Kerala
20.	M/s. Liberty Cold Storage P. Ltd. Madras, Tamilnadu

**TOP TWENTY EXPORTERS OF
FROZEN LOBSTER TAILS FROM
INDIA IN 1981-82 RANKED ON
THE BASIS OF VALUE OF
THEIR 1981-82 PERFORMANCE**

RANK	NAME
1.	M/s. Union Carbide India Ltd., Visakhapatnam, Andhra Pradesh
2.	M/s. Kala Cartons P. Ltd., Madras, Tamilnadu
3.	M/s. Castlerock Seafoods P. Ltd., Bombay, Maharashtra
4.	M/s. King Fisheries P. Ltd., Quilon, Kerala
5.	M/s. Poyilakada Fisheries Quilon, Kerala
6.	M/s. Ravi Fisheries P. Ltd. Bombay, Maharashtra
7.	M/s. Cham Ice & Cold Storage Porbandar, Gujarat
8.	M/s. Bellish Foods Alleppey, Kerala
9.	M/s. Castlerock Fisheries P. Ltd. Bombay, Maharashtra
10.	M/s. East Bay Fisheries Madras, Tamilnadu
11.	M/s. Ceyvero Southern Inc., Madras, Tamilnadu
12.	M/s. Sheshank Seafoods P. Ltd. N. Kanara, Karnataka
13.	M/s. Sawant Fisheries P. Ltd Bombay, Maharashtra
14.	M/s. Chowgule & Co. P. Ltd. Marmugoa, Goa
15.	M/s. Amar Cold Storage Porbandar, Gujarat
16.	M/s. Rallis India Ltd. Bombay, Maharashtra
17.	M/s. Cham Trading Organisation Veraval, Gujarat
18.	M/s. Poyilakada Fisheries P. Ltd. Quilon, Kerala
19.	M/s. Andhra Marine Exports P. Ltd. Quilon, Kerala
20.	M/s. Madras Pack Marine Mandapam, Tamilnadu

**TOP TWENTY EXPORTERS OF
FROZEN CUTTLE FISH
(INCLUDING FILLETS) FROM
INDIA IN 1981-82 RANKED ON
THE BASIS OF VALUE OF THEIR
1981-82 PERFORMANCE**

Rank	Name
1.	M/s. Abad Fisheries Cochin, Kerala
2.	M/s. Ceyvero Southern Ince., Madras, Tamilnadu
3.	M/s. Kala Cartons P. Ltd., Madras, Tamilnadu
4.	M/s. King Fisheries P. Ltd. Quilon, Kerala
5.	M/s. Relish Foods Alleppey, Kerala
6.	M/s. Capithan Exporting Co. Quilon, Kerala
7.	M/. Universal Trades Corp. Cochin, Kerala
8.	M/s. Indian Aquatic Products Quilon, Kerala
9.	M/s. King Fisheries Quilon, Kerala
10.	M/s. Sea Hawk Foods Madras, Tamil Nadu
11.	M/s. East Bay Fisheries Madras, Tamilnadu
12.	M/s. Toyo Seafoods Cochin, Kerala
13.	M/s. Ravi Fisheries P. Ltd. Bombay, Maharashtra
14.	M/s. Voltas Ltd. Bombay, Maharashtra
15.	M/s. Peninsular Shore Fisheries Madras, Tamilnadu
16.	M/s. Chemmeens (Regd). Cochin, Kerala
17.	M/s. K. E. Kesavan and Sons Cochin, Kerala
18.	M/s. Castlerock Seafood P. Ltd. Bombay, Maharashtra
19.	M/s. Tata Oil Mills Co. Ltd., Bombay, Maharashtra
20.	M/s. Ravi Ratna Exporters Pvt. Ltd., Bombay, Maharashtra

**TOP FIFTEEN EXPORTERS OF
DRIED FISH FROM INDIA IN
1981-82 RANKED ON THE BASIS
OF VALUE OF THEIR 1981-82
PERFORMANCE**

RANK	NAME
1.	M/s. Camillus Fernando. Tuticorin, Tamilnadu.
2.	M/s. Coromandel Exports, Tuticorin, Tamil Nadu.
3.	M/s. Juma and Sons Bombay, Maharashtra
4.	M/s. Inter Ocean Exports Tuticorin, Tamil Nadu
5.	M/s. Crown International Bombay, Maharashtra
6.	M/s. Ebrahim Virabai & Sons Bombay, Maharashtra
7.	M/s. Clayton Vee Vee Agencies Tuticorin, Tamil Nadu
8.	M/s. Prosper Corporation Tuticorin, Tamil Nadu
9.	M/s. Allana Sons Pvt. Ltd. Bombay, Maharashtra
10.	M/s. Soosiah Fernando & Sons Tuticorin, Tamil Nadu
11.	M/s. Calicut Dry Fish Traders Calicut, Kerala
12.	M/s. Tradewell Associates Madras, Tamil Nadu
13.	M/s. Alimohamed Haji Hussain & Co., Bombay, Maharashtra
14.	M/s. Janjira Trading Co. Bombay, Maharashtra
15.	M/s. Bhoola Sons Bombay, Maharashtra

4DAY CHRONICLE

VISAKHAPATNAM:

In early September catches from small mechanised boats were modest, with an average of 10-15 kg. of shrimp and about 300 kg. of fish per boat, the average earnings being Rs. 1,200/- per boat. Towards the end of the month catches had improved, the average catch being 100-200 kg. of shrimp. White landings came down, while Poovalan catches had gone up. A few boats landed shrimp to the extent of 300 kg. on certain days. There were over 100 mechanised boats from Kakinada now operating from Visakhapatnam.

On 5th Sept. a mechanised boat, VPT 461, capsized and sank off Rishi hill near Visakhapatnam, while engaged in fishing. This happened, it is stated, because of heavy gale in which the boat was caught. One crew member escaped while four others died. The boat belonged to one Mr. Ramaraju, holder of engine driver ticket and who worked earlier in A.P.F.C. trawlers. All mechanised boats stopped operations for one day. They collected funds at Rs. 100/- per boat and gave to the families of the deceased.

In regard to larger trawlers, after enforced stays at Vizag and Paradeep ports often and on account of cyclonic weather, vessels started sailing from 13th Sept. Fishing was reported to be good, each trawlers bringing around 6 tonnes of shrimp, about two tonnes of tigers and whites and the rest browns, per voyage, by end of September.

After a prolonged spell of agitation for nearly two months on the part of the crew of Tata Oil Mills and Konkan Fisheries (P) Ltd. the situation had become normal, as a result of an amicable settlement between the respective managements and crew.

Earlier, every day the floating staff of Konkan used to shout slogans in front of the company's office for 15 minutes at noon and after 5.00 p.m. The floating staff went to the extent of scribbling slogans on fishing harbour walls and on the walls of Konkan Fisheries office also. Such demonstrations and slogan-writing was indulged in by floating staff of Tata vessels also.

There had been an increase in the number of anti-social elements in the fishing harbour. Open fights between and among fish unloading gangs were on the increase. In spite of the presence of police men, the safety of law-abiding men at the harbour was running into jeopardy. It was noted that the policemen were always confined to the room given to them, not taking the trouble to take rounds and watch developments.

We know of 'Mini-super Bazaar', 'Mini-bus', 'Mini-skirt', and so on. To add to the list, the professionals frequenting the fishing harbour had nick-named the company 'Marshall Sea Foods' as 'Mini Union Carbide'. This company and its associate company 'Unimarine' together operate four trawlers. The reason for the distinction given by conferring the name 'Mini Union-Carbide' is stated to be that the management of the

companies is modelled on Union Carbide lines. All their skippers were drawn from Union Carbide's reservoir of floating staff. It is hoped that these companies would limit their imitation of management style to matters other than financial management.

Marshall Sea Foods, it is understood, had run into some trouble with their crew concerning payment of incentives. The crew, it appears, wanted that the incentives should be paid immediately after the conclusion of a voyage. The management took the stand that this would be paid after every few voyages. The management was also not willing to pay share in returns from sale of fish. The matter, it is stated, was however satisfactorily resolved.

One of the fishing companies operating trawlers is stated to have found an 'easy' way to get engineers of fishing vessels on payment of lower salaries. It is mentioned that it had started sending out their trawlers with engine drivers not having dispensation. Engine drivers without dispensation are cheaper for employment. It is stated that it had come to the notice of the Mercantile Marine Department that a well known fishing company had been running trawlers with unqualified hands, not permitted under M.S. Act. An enquiry is now instituted and the results are to be seen.

The hydraulic motor of one of Marshall group of vessels, recently imported from Holland, broke into pieces, while the vessel was in fishing operation. The skipper had to cut off the warp on one side, losing the entire fishing gear.

It is understood that all MDL trawlers of Union Carbide would soon be shifting to Roychowk. Three of them are already there at Roychowk.

Surya I and Surya II belonging to Suraj Fisheries sailed out on

19-9-1982. Surya I had made one voyage earlier but further sailings were stopped by port and customs authorities on instructions from Shipping Development Fund Committee. The detention was considered to be on erroneous grounds and it had led to considerable financial loss to the company. The vacation of the detention order enabled the vessel to sail out on 19-9-1982. Surya II, which reached Vizag on 31st January 1982, could sail out on 19-9-1982 only on her maiden voyage.

There were comments that several of the trawler owners were not taking necessary care in the repairs and maintenance of their vessels. So much so the thickness of shell plating, it is stated, in certain areas, came down to less than 5mm. In oil tank area of a vessel, it is stated, the thickness was filmy in nature.

The non-mechanised fishing

crafts at Visakhapatnam are now berthing their vessels at the northern arm of the outer harbour. The Visakhapatnam Port Trust, it is stated, has now asked them to vacate the areas as they have to start construction work there also. The fishermen have to find another place.

Although there was an agreement between the fisherwomen who cure and dry their fish in the vacant plots of the fishing harbour and the port trust, the places have not yet been vacated. At present, the fisherwomen are also using every inch of place available on the beach adjacent to the fishing harbour. The port trust has now taken up the construction of fish drying platforms immediately north of the fishing harbour. It is hoped that this facility would be availed of by the fisherwomen and they would vacate the sites they occupied within the fishing harbour.

MARKET TRENDS

Japanese yen having become weaker, Japanese buying in India had become dull for all varieties of shrimp. Export prices for all varieties were down. There was only occasional buying for PUD material, that too upto 200/300 count. No interest was being shown on 300/500 and broken. It was expected that soon there would be depletion of stocks in

Japan which may result in renewed buying. It is difficult to make any forecast of the future price trends, but there is a talk that prices may go up by November. The U.S. market is steady in regard to shrimp. There is expectation of sizeable import of shrimp from Mexico in the next few months. The prices at the end of September 1982 were as follows.

JAPAN

Type	Count Range	Price Range Per Kg/US \$
HL White	8/12-71/90	14.30-4.20
HL Tiger	11/15-61/70	14.30-5.90
HL Brown	16/20-71/90	12.50-4.30
PUD	80/120-200/300	4.50-3.05
	300/500	2.10
	Broken	1.10

U.S.A.

Type	Count range	Price range per lb/US \$
PUD Black	130/200-300/500	2.10-1.50
	Broken	0.90-1.00

Towards the later part of September, catches from mechanised boats at Visakhapatnam improved considerably. The landings were of the order of 100-200 kg. per day and the daily catches were of the order of 5-10 tons of which major component was Poovalan. It was after a long time Visakhapatnam was having poovalan catches of a good size (81/120). The raw material prices for mechanised boat catches were Rs. 90-100 for whites, Rs. 55-60 for browns and Rs. 10-13 for poovalan, per kg.

The trawler catches at Visakhapatnam had also improved considerably, each trawler landing around 6 tons per voyage. Roughly out of the 6 tons, 2 tons consisted of whites and tigers, and 4 tons of browns. The prices were, for tigers Rs. 115, for whites Rs. 89, and for browns Rs. 59/

per kg. towards the end of September.

The catches at Kakinada continued to be poor. The mechanised boats from Kakinada had migrated to Visakhapatnam.

In Chilka area, there was slight improvement of shrimp catches after floods, the catches being around 1-2 tons of whites per day.

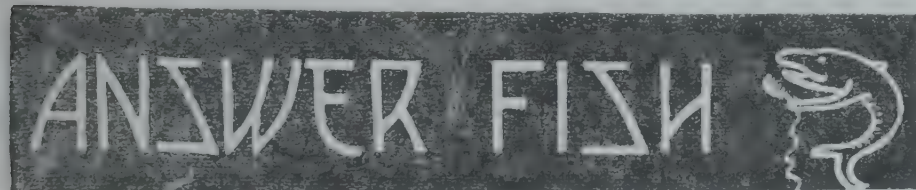
At Calcutta, the season was almost over by 25th September. There was no likelihood of further catches for another three months.

Fishing for shrimp at Madras and Cuddalore was poor.

At Mandapam the landings were of the order of 2-3 tons per day.

At Veraval there were very good pomfret catches. Shrimp season was expected to commence next month.

The Government do not seek to derive any benefits through charters. The government would only take a licence fees of Rs. 10,000/- per annum per vessel. The charter programme was introduced by the government for national benefit. It is expected that the charterers, after gaining experience in the operation of the chartered vessels and training their own crew on board these vessels, acquire similar vessels. For this acquisition government would provide loan assistance through SDFC. In order to ensure that the charterers do not commit any lapse in this respect, the Government takes a bank guarantee of Rs. 2 lakhs for one type of vessels not exceeding 5 numbers. There is a talk that government may revise this condition to provide for the provision of this much guarantee amount for each vessel chartered. Fishermen can also avail of this facility of chartering foreign fishing vessels, provided that some of them can form either into a cooperative or a limited company under the Companies Act. They have however to invest not less than Rs. 5 lakhs as paid-up share capital. Fishermen who are not in a position to set up their own enterprises can seek positions as trainees on chartered vessels and gain experience in the operations of chartered vessels.



Q. What is meant by dry chartering and wet chartering? What way these are beneficial to the Government of India or fishermen in particular? Do not you think that under this disguise many foreign trawlers are poaching in our EEZ? What is the solution?

BHISMA
Visakhapatnam.

A. Bare-boat charter is the correct term for dry charters. Likewise time charter is the right term for wet charters. In a bare-boat charter, the owners make

available the fishing vessel without crew compliment. It is the responsibility of the charterer to employ the crew and meet all the running expenses. In the case of time charter, the owner will make available the fishing vessel with crew compliment. He would also bear all expenses connected with the running of the vessels. A fixed charter hire has to be paid by the charterer to the owner in both the cases. Hire for bare-boat charter will naturally be far less than for a vessel taken on time charter.

Fishing by chartered foreign fishing vessels cannot be termed as poaching in our EEZ. Their operations are perfectly legal under a regular permission given by the government. It is however possible that, when a large number of vessels are chartered from one country, a few more may join with the hope that they may escape detection, but this will be very difficult. In order to eliminate such illegal incursions, the only solution is for our coast guard to intensify surveillance activities.

★ STAR FISH

HERE is an estimation of what stars say about fortunes of fishery industrialists, managers and operators for the period of October 14 to November 15, 1982. Believe it or not.

ARIES (Mar. 21 to Apr. 20):

You may receive some exciting news in the 2nd week of October, which may relate to business matters. While you are likely to relax in the later part of October, it is possible that you may encounter some opposition to your plans towards the end of the month. There will be financial problems in early November. With some resourcefulness, you may be able to raise funds that are necessary. You may be flattered by your friends into spending lot of money. Guard against this. You can look forward to some financial benefits around 10 Nov. You may join hands with others for mutual profit towards the end of 1st fortnight of Nov. Fishing is likely to improve towards the middle of October.

TAURUS (Apr. 21 to May 21):

You will be in an optimistic mood and there are possibilities of rewards for the hard work you had put in so far during the year. You will find solutions to your problems towards end of Oct. In the first week of Nov. you may indulge in lavish entertainment of guests. If you have a career project on hand pursue this vigorously as there is a likelihood of success. Good fishing can be expected towards 16 Oct. and around 14 Nov.

GEMINI (May 22 to June 21):

There is a distinct chance of coming closer to your cherished goals. Financial problems may cause some anxiety around 24 Oct. But towards the end of the month there will be beneficial developments, mixed with minor set backs. In early Nov. you may face some minor irritations from friends or co-workers. There may be health problems in the 2nd week of Nov. 11-13 Nov. are likely to be prove to be lucky days. You may have good fishing during this period.

CANCER (June 22 to July 23):

You are on the anvil of the best period of the year. Around 18 Oct. you are likely to be crowned with recognition of your efforts followed by surprising favourable developments. There will be happiness at home. Business and financial interests will improve. 16 Oct. seems to be an exceptionally good day for you to act on anything you want to achieve. There may be some tensions in the 1st week of Nov., but they will wane. Do not take any impulsive action around 8 Nov. Later in the week, there can be good financial returns. You can expect good fishing during the period.

LEO (July 24 to Aug. 23):

Third week of Oct. is good for reaching decisions and signing important documents. Team work with colleagues may be in trouble, owing to differences in views. Financial dealings are high-lighted towards close of Oct. You will

and other financial work in the 1st week of Nov. Utilise them wisely and tactfully. Fishing may be good around 13 Nov.

VIRGO (Aug. 24 to Sept. 23):

Further foundations will be laid for improvement in your income during this period. Take advantage of opportunities and utilise them for your benefit. Undertake a long range financial programme at the earliest. You may receive an unexpected gift around 21 Oct. Do not take any financial risks towards the close of Oct. You will have the satisfaction of advising and helping a close friend of yours. 1st week of Nov. does not seem to be favourable. Do not sign any document during this period. There can be happy news connected with, probably, finances in the 2nd week of Nov. Good fishing can be expected in the 2nd week of Nov.

LIBRA (Sept. 24 to Oct. 23):

This is the right time to initiate follow-up action on any project about which you have been thinking in the past. Decisions which you make during this period will have long term advantages. There may be a minor set back in the domestic sector. Learn to study people before giving credence to their words. End of Oct. may offer opportunities for increased earnings. First week of Nov. may create some problems, in spite of all your efforts. Yet, there are good chances of professional success during the period. Do not overspend money. Think carefully and work hard during 12-14 Nov. which may lead to financial benefits. Good fishing can be expected during these days.

SCORPIO (Oct. 24 to Nov. 22):

A good period for giving final touches to any plan that you

have been formulating. You can proceed with confidence to implement any developmental plan you have in mind. Good news concerning finances can be expected around 19 Oct. The following 2 or 3 days will also turn out to be fortunate. In the fourth week of Oct. there is a possibility of your reaching agreement with partners. Career-wise, you will be successful. There may be tensions in the 1st week of Nov. but there will be a happy end. You are prone to use your temper in the 2nd week of Nov. That won't help you in any way. Therefore try to keep cool looking at the problems objectively. Seek favours from those higher-up during 12-14 Nov. Do not lose any opportunities that come in your way. Good fishing can be expected around 15 Oct. and 15 Nov.

SAGITTARIUS (Nov. 23 to Dec. 21):

There will be an unexpected opportunity coming in your way and you will make the best use of it. Between 16-20 Oct., if you act resourcefully, you will be victorious. 26 Oct. will be an encouraging day. Petty problems may cause annoyance to you in the first week of Nov. You will move towards realisation of your future plans in the 2nd week of Nov. Fishing is likely to be encouraging around 17 Oct. and 12 Nov.

CAPRICORN (Dec. 22 to Jan. 20):

An influential friend of yours will help you in the advancement of your prospects. Do not brood on the past, but work out your plans meticulously for the present and future. Towards later part of Oct. you will develop vitality and confidence to meet any challenges that you may have to face. Be careful about financial dealings. You may have financial gains towards the end of 1st week of Nov. Avoid any urge towards gambling.

You may undertake an important travel around 9 Nov. You can expect good fishing results intermittently during the period.

AQUARIUS (Jan. 21 to Feb. 19):

There may be troublesome financial dealings, but soon you will get out of them. Favourable developments will provide considerable encouragement and you will act with energy. You will develop or strengthen contacts with an experienced person and these will be beneficial. Business oriented travel may take place in the last week of Oct. In fact you will find a lot of personal advancement during this week. Plan your activities carefully in the 1st week of Nov. as it may turn out to be busy period. In the second week of Nov. there is a possibility of your facing some set backs in your professional work. By 13 Nov. your position may improve. You will have good

fishing in the third week of Oct. and 3rd week of Nov.

PISCES (Feb. 20 to Mar. 20):

You will have financial gains through business partnership or through business associates. Financial prospects are bright during the period. Impressive career advancement is also possible around 24 Oct. You may have minor frustrations, but they will soon pass. Minor tensions may develop between associates, but then these will give a close insight into the motives of others. It is advisable to build up support and backing to reach your major goals. You may face a challenging situation in the first week of Nov. concerning some financial arrangements. You will however be able to face it and you may be able to give a finishing touch to a joint activity. Good fishing can be expected during 11-14 Nov.

NEWS WAVES

DEEP SEA FISHING ENTREPRENEURS ASSOCIATION IN THE OFFING?

A large number entrepreneurs in the field of deep sea fishing in the small and medium sectors, desirous of having an organisation to represent their points of view to the government effectively, are reported to have decided to form an Association soon.

WHITE AND TIGER SHRIMP CULTURE IN FRESH WATER

There are reports that tiger shrimp culture in fresh water is being successfully undertaken near Machilipatnam in Andhra Pradesh. It is also understood that white shrimp was found growing well in a stagnant fresh water

stretch near Kakinada into which the fry seem to have found their way during rains from adjoining backwaters. Studies in this regard are in progress under the auspices of CIFE

WIND MILLS AT BRACKISH-WATER FISH FARM AT KAKINADA

Recently three wind mills have been installed at the brackishwater fish farm, Kakinada, which is under the management of the Central Institute of Fisheries Education, Bombay. It is stated that these mills were supplied free of cost by the Institute of Engineering and Rural Technology, Allahabad. This supply was in pursuance of a directive from the Prime Minister of India to supply

such wind mills to all production units where there is adequate wind power. The A.P. Fisheries Corporation also has received three such mills, but they have not yet been installed.

DEVELOPMENT OF FISHERIES IN RAJASTHAN RESERVOIRS

It is understood that steps have been taken to extend the scope of the World Bank Project for fish seed production in 5 Indian states to develop fisheries in reservoirs in Rajasthan. All basic work relating to this is stated to be in good progress.

FARAKKA AUTHORITIES PAY COMPENSATION TO BIHAR FISHERIES DEPT.

As a result of construction of the barrage across Ganga at Farakka, the upward migration of fish particularly hilsa is completely affected. In order to compensate this loss, it is understood that Farakka Barrage authorities have agreed to pay a compensation of Rs. 5 lakhs per annum to the Bihar Fisheries Department.

It may be mentioned here that a fish-lock was provided as part of Farakka Barrage. This lock was designed by Dr. V. R. Pantulu, who is now working as Fisheries Expert with ECAFE, Bangkok. Although this lock is in existence, it is not being operated and its efficiency is not tested. The present position is that the fish population above and below the dam remain the same as at the time of construction of the barrage.

IMPORT OF FISHING VESSELS UNDER 1977 SCHEME

It is understood that the Ministry of Agriculture has almost decided to close down all long pending cases relating to 1977 import

scheme which are not yet settled. It is further understood that the Ministry has a proposal to notify a scheme under which indigenous construction of fishing vessels would be encouraged. If any Indian Shipyard is not in a position to construct and supply any particular type of vessel, the government would consider favourably the question of permitting import of such vessels.

CHARTERING OF FISHING VESSELS

In the original scheme for chartering of fishing vessels announced by the government around 1977 there was no condition in regard to provision of bank guarantee by the charterers, to be forfeited to the government in vessels as stipulated in the terms and conditions. Subsequently a case the charterer fails to acquire condition was included that for each vessel permitted to be chartered a bank guarantee for Rs. 2 lakhs should be furnished. In February 1982 this condition was amended to provide for the furnishing of a guarantee for Rs. 2 lakhs for one type of vessels not exceeding 5 Nos. Pair trawlers under these amended guidelines are to be treated as a single vessel. It is now understood that the Ministry of Agriculture is again thinking in terms of stipulating a condition that for each vessel a guarantee of Rs. 2 lakhs should be provided. A pair trawler also, it is understood, will be treated as 2 vessels and not a single vessel. If this new condition materialises it means that those who were given clearances between February and September 1982 would stand benefitted. Assuming that government stipulated the revised conditions that came into force in February 1982 after careful consideration of various angles, what transpired in the short duration of six months to again

revise the conditions is not known. No charterer after February 1982 seem to have contravened any of the conditions.

TRAINING PROGRAMME IN FISH FILLETING

A training course on fish filleting would be conducted at Integrated Fisheries Project, Cochin from 2nd-30th November 1982. The course will be organised by MPEDA availing of EEC assistance. It is expected that two EEC experts will be at Cochin to impart the training.

WORLD RECORD IN CULTURE TIGER PRAWN GROWTH

It is stated that at the Brackish-water fish farm, Kakinada, run under the control of Central Institute of Fisheries Education, Bombay, tiger prawns attained size of 250 mm. in 9 months. This is stated to be a world record. The previous record was a growth of 225 mm. in Philippines.

INFOFISH CONSULTANT'S VISIT TO INDIA

Dr. Lima Dos Santos of FAO and an INFOFISH consultant visited India from 12-17 September 1982. During his visit, he collected and consolidated information on quality standards and fish inspection methods. This visit was undertaken in accordance with the recommendation of the technical consultation of national Liaison offices of INFOFISH. Dr. Santos would also be visiting Sri Lanka, Bangla Desh, Thailand, Malaysia and Singapore.

FIRST SHIPMENT OF FROZEN FISH TO GOA

In August 1982 frozen fish weighing 600 tons valued at Rs. 60.10 lakhs was exported from Goa port by Tropical Shipping

Company, Visakhapatnam. This was the first frozen fish consignment exported from Goa. All exports through this port so far consisted of frozen shrimp.

KONKAN FISHERIES TO GO IN FOR CHARTERED VESSELS

It is understood that M/s Konkan Fisheries (P) Ltd. a Chowgule group company is investigating the possibilities of entering the field of fishing through chartered vessels. It is believed that they would soon be approaching the government for permission in this regard.

CHARTERED TRAWLERS OF PEEJAY INDO-BULGARIAN FISHERIES LTD.

It is understood that one fishing trawler of Turkish registry was chartered by M/s Peejay Indo-Bulgarian Fisheries Ltd. through their joint venture partners in Bulgaria have arrived. They have also recruited the Indian crew to receive training on board the chartered vessel.

UNION CARBIDE SHIFTING OPERATIONS TO ROYCHOWK

On account of the availability of facilities for the operations of deep sea fishing vessels at Roychowk fishing harbour, Union Carbide has already shifted 3 of their Mazagon Dock built trawlers to that port. It is understood that active arrangements are under way for shifting the remaining vessels so to that port from Visakhapatnam.

DODGING AT SAND HEADS

Around 23 Sept. about 100 steel hulled foreign vessels were seen dodging sandheads, busily engaged trawling. Skippers of the Indian trawlers in the area immediately

brought this to the notice of their managements, some of whom immediately brought the matter to the notice of Ministry of Agriculture and the Coast Guard. By 30 Sept. it was stated, the vessels moved away.

There was also an observation from a few skippers that a few Bangladesh trawlers strayed into our waters but soon went back into their zone.

CMFRI DISCOVERS NEW SHRIMP TRACK

A new route of shrimp migration has been found by the scientists of the Central Marine Fisheries Research Institute, Cochin, by tagging shrimp.

About 19,000 shrimp were tagged and released at Cochin's shipping channel during April-May last year.

Recently, near Tirunelveli, in the Gulf of Mannar, two of the tagged shrimp were caught throwing a new light on the course of the migrating shrimp in Indian waters. The distance between the release point and the catch was around 300 km.

According to Dr. E. G. Silas, Director, CMFRI the shrimp took about 61 days to travel around Cape Camorin to enter Gulf of Mannar. He said that this discovery would have a far reaching significance in the management of the heavily exploited shrimp.

CIFNET TRAINING FOR MECHANICAL ENGINEERING DIPLOMA HOLDERS

Central Institute of Fisheries Nautical and Engineering Training is conducting training for Mechanical Engineering Diploma holders to qualify as engineers of fishing vessels. The course has

commenced after second week of September 1982. The diploma holders are being given a six week introductory course at CIFNET comprising brief details of main and auxillary engines and supporting plants on board fishing vessels, layout of engine room and deck machinery on board a fishing vessel and life saving and fire fighting appliances on board fishing vessel.

NEW FISHERIES MINISTER FOR A.P.

Mr. P. V. Raghavulu is the new Minister for Fisheries of Andhra Pradesh. Shortly after taking over his new assignment, Mr. Raghavulu visited Konaseema area in East Godavari District. It was announced by him there that under a project approved by the Swedish International Development Agency a master plan for the development of fisheries of Konaseema area with an augmented outlay of Rs. 5.00 crores would soon be implemented. He said that this project would improve the lot of a large number of fishermen living in 20 villages in the coastal areas of Konaseema.

FISH FARM AT NAGARJUNA UNIVERSITY

Financed by the A.P. Scheduled Castes Corporation, a Fish Farm would soon be constructed in the premises of Nagarjuna University, Guntur with an outlay of Rs. 9.68 lakhs. Dr. Bhaskarareddy, Vice-Chancellor of the University laid the foundation stone for the farm on 25 September 1982. It is expected that the farm would become operational by June 1983.

The setting up of the farm in University area would well be a bridge between the university and the fish farmers, Mr.

Itaghavachari, Principal of the University College, said.

It was mentioned by Mr. T. Gopal Rao, Collector, Guntur District on the occasion that the Government would be spending Rs. one crore for the setting up of fish farms in Guntur district during 1982-83.

* * *

IFP UNIT AT VISAKHAPATNAM

It is understood that proposals are at an advanced stage of consideration to set up a unit of the Integrated Fisheries Project at Visakhapatnam. It is believed that the setting up of such a unit would give a fillip to the diversification of fishing operations from the various ports in the state and would also help in the upgradation of the capabilities of the fishermen of the area.

* * *

ADMINISTRATION OF LOANS FOR ACQUISITION OF FISHING VESSELS

There are strong indications that

the administration relating to the sanction and granting of loans for acquisition of fishing vessels would soon be transferred from SDFC to the Union Department of Agriculture. It is stated that a separate cell for this purpose may be set up in the Department.

* * *

AGGRESSIVE FISHING VESSELS SALES DRIVE BY MAZAGON DOCK

Mazagon Dock Limited, Bombay has now come all out, with offers to build 23 m long combination trawlers at a net cost of Rs. 55.41 lakhs (excluding fishing nets, sales tax) per trawler. They will provide the necessary bank guarantee to SDFC to enable the parties to take release of loan. The vessels will be constructed under the supervision of Mazagon Dock at its various affiliated yards.

These rafts have small masts and radar reflectors to evade accidents with the ships.

The collected fish on the rafts is transported to the shore with small motorised dinghies or other small boats. In this way the small scale fishermen could save a lot of their time and fuel and at the same time can have good catch.

These FADs are now largely favoured in all the atolls of the islands.

The FAO's Bay of Bengal Programme is now planning to assign Peter Charles to try the FADs in Sri Lanka.

* * *

REVIVAL OF ICATFN

Japan, reeling under the impact of tuna production in the country and surrounding region of Pacific has begun negotiations to revive International Conference of Asian Tuna Fishing Nations. This conference was held a decade back.

The meeting is for making an arrangement to reduce the overspill of production of tuna in the region so that the prices may remain stable. Therefore it necessitated Japan to have talks with the neighbouring countries to come to an understanding.

* * *

SEA FISH EXPRESS

In order to promote the project aimed at increasing the fish consumption among the British, the Sea Fish Industry Authority has launched a novel campaign. A train named Sea Fish Express would leave London during this month on a trip touching 20 towns and cities.

This train would demonstrate to the public the benefits of sea fish

INTERNATIONAL

FISH AGGREGATING DEVICE GIVES GOOD FISHING

With a lot of time and fuel saved, small scale fishermen are now craving for new fishing equipment designed by FAO's consultant Charles Peters in Maldives islands.

Assigned to execute a small project for small scale fisheries in Maldives, Peter Charles tried his Fish Aggregating Device made of cheap material such as oil drums, rubber tyres, wooden boxes etc. He made rafts of various sizes with these materials and stationed them at potential fishing grounds confirmed through an echo sounding survey. Thereafter

old trawl nets were cut and pieces of bait were hanged to it. Rest of the work was easy for the fishermen handling pole and line. Major catch is tuna, frigate mackerel, rainbow runners and dolphins.

The instant success of these rafts have attracted attention of larger sections of small scale fishermen in Maldives islands.

Each raft costs 200 to 500 US dollars. Oil drums of 200 litre capacity are fixed and welded together in an angled iron frame and anchored at the selected sites with the help of cement filled drums on each side. They could be stationed wherever the fish is available in large quantities.

and various methods on making it a palatable dish.

In yet another effort, the Sea Fish Industry Authority has set up a Sea Fish Information Service with Head Quarters at London. This has an experimental kitchen, home economists, arrangement for lectures and demonstrations.

At the end of this year a national and regional fish cooking competition would be organised by the Authority.

* * *

LEGAL ACTION ON BELGIAN FUEL SUBSIDY

An amount of £ 750,000 provided by the Government of Belgium to its fishermen in the form of subsidies in order to save fuel has come under legal action to be taken up by the European Common Market Commission.

According to the spokesman of the Commission, Mr. George Conotogeorgis the fuel subsidies offered by the Government of Belgium to its fishermen would not serve its purpose since the recipients have financial commitment. He stated that the subsidies only give temporary relief on the fuel costs but do not have a long term effect as stated by the Belgian Government.

He said that the subsidies give an unfair advantage to the Belgian fishermen over the fishermen of the member countries.

The subsidies were rather an operational aid instead of energy saving aid, it was said.

A legal action has been proposed by the Commission on the government of Belgium.

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CHILD SLAVERY IN SRILANKA

On the small islands of the northern Srilanka fish is dried and traded in the main land.

Curing and drying fish does not need big hands. So the men who run the business buy children under 12 years in dryfish market places at a price and herd them to the lonely islands to work 15 hours a day. The food they get is just a dry fish, small crumbs of bread and plain tea. The parents who are very poor sell their children to the fish curers and driers in the markets.

It was known only when the police of the Polgahawela area investigated this horrifying slave trade. Efforts are made to put an immediate stop to this slave trade in Sri Lanka.

* * *

GIANT SQUID

A gigantic squid weighing 2.5 tons was hauled during June this year in New Zealand waters by Kiso Maru, a Japanese joint venture ship.

The squid which was said to be the largset ever found measured 8.5 metres in overall length and had tentacles of 3.8 metres length. Eyes measured at half a metre in diameter.

* * *

TOO MUCH TUNA

The villagers of Kundukuliya on the west coast of Srilanka have joined the group of tuna catchers worldwide who are suffering from too much of it.

While the mackerel is attracting the larger section of consumers, recent bonanza of tuna could not find market, hence the glut.

The tuna sellers are just a left-out lot in the fish market of Kandakuliya.

* * *

AUSTRALIAN TRAWL FISHERY ASSESSMENTS

In order to obtain information on a continuing basis about trawl

fishery resources, necessary for conservation measures and exploitation, the Fisheries Development Trust Account of Australian Government has provided an amount of 78,000 Australian dollars.

According to Mr. Peter Nixon, Minister of Primary industry this would enable the government to manage fishery resources more efficiently.

* * *

INTERPLANETARY FISHING !!

If you are bored with fishing on this mother earth, the United Planetary Commission, New York offers you the wildest and craziest of the choices available. Buy rights from the United Planetary Commission, to fish either on Mars or Jupiter. This has recently been announced in the news papers of New York and surrounding places.

The Commission considers Moon as not fit for fishing. Since there has been several theories of availabilities of waters on the other two planets the Commission thinks that they would be good for fishing.

Good luck, entrepreneurs !!

* * *

THAIS GO FOR MARLIN

The Thais have engaged a vessel to conduct survey on the feasibility of marlin fishing in the Gulf of Thailand.

The survey is being carried on in the 60 to 80 metres depth, where small boats cannot operate. However, if the survey proves to be profitable, the marlin could be harvested with the help of modernised version of Japanese longlining.

The marlin has good demand in local as well as international markets.

Combination trawler



This type of vessel is custom built in series and is specially designed for as well beam as stern trawling in tropical waters.

The result is a stable vessel with a large working deck area and easy to handle in all respects.

The hull is of the single chine form, giving a large fish hold, a spacious engine room and a bigger accommodation under deck.

The hull is divided into six watertight compartments: forepeak, crew accommodation, engine room, fish hold, fuel tanks and afterpeak/netstore.

Freezing of the catch is done by the brine tank on the main deck and by a blast freezer in the hold.

The propulsion installation consists of a Caterpillar marine diesel engine of 270 kW (365 hp) at 1800 rev/min, driving a fixed pitch propeller.

The three-drum fish winch is hydraulic driven. Two auxiliary engines drive a compressor for the freezing installation, generator and a bilge pump.

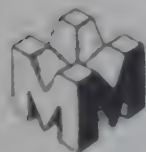
In the superstructure are provided a galley/messroom, two toilet/shower cabins, two double and two single cabins. In the forepart below deck an eight berth crew compartment.

Nautical and fishing equipment, comprise among others radar, radio installation, direction finder and echosounder.

The vessel obtained the classification Lloyd's 100 A1 "trawler" and Lloyd's Machinery Certificate (LMC).

Main particulars:

length overall	23.50 m
length between p.p.	21.00 m
breadth mld.	6.50 m
depth at side	3.40 m
draft (mean)	2.65 m
fish hold capacity	abt 70 m ³
fuel oil capacity	abt 40 m ³
fresh water capacity	abt 15 m ³



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THAILAND TO STRENGTHEN ANTI-PIRACY TASK FORCE WITH UN AID

An aid of about 3.6 million dollars would be provided to Thailand to check piracy in the Gulf of Thailand. Squadron Leader Prasong Soonsiri, Secretary General of National Security Council has received a check for this amount from the US High Commission for Refugees.

This money will be spent for providing security to the Vietnam refugees in the Gulf of Thailand. There has been terrible attacks on them by pirates for the last few years. Cases of arson, murder and rape have become common in the Gulf of Thailand due to the pirates who attack the innocent refugees from Vietnam. The aid provided by the UN will go a long way in helping these innocents.

* * *

TRAPS YIELD MORE ROCK LOBSTER

The fishermen in South Yemen report that the catch of rock lobster is more when traps are used. Although the rock lobster fishing was done by bottom nets, the comparative yield is greater when traps are used.

The rock lobster abounds in South Yemen waters during April to November.

The estimation of rock lobster fishing in this area is about 2000 tons. The largest rock lobster caught off these waters weighed 900 gms.

Small boats called sambuks are being used for rock lobster fishing in South Yemen.

* * *

FISH CONSUMER SERVICE ON INTENSIVE SCALE IN BRITAIN AND USA

It is reported that the per capita consumption of fish in United

States of America is less than that what it should be. The Americans consume 13 lb. per head per year. It has remained so far the past ten years. A total of 8000 million lb. of fish is consumed in the U.S.A. Half of it is imported.

To increase the consumption rate in USA, an intensive consumer education campaign has been organised in 20 cities by National Marine Service. As a result, there has been a 12 per cent rise, the organisers say.

To allay the fears among the consumers on the dangers of botulism, PCB contamination, and mercury poisoning NMFS is conducting its safety research on a vigorous scale.

In Britain, packing has become handy in pushing the sales of shrimp. Attractive packs are flooding the markets with products that could be prepared in any form from baking to frying. The versatile utility of the products have eased the pains of housewives who are often reported to be pondering for long on what to do with the fish they bought. Now with the new package system, the housewives only have to buy the fish packets and take the decisions at home, instead of at shop.

* * *

SOUTH KOREA SETS HIGH

With an aim to earn 1000 million dollars through sea food exports. South Korea has set its catch target for 1982 at 2.65 million metric tonnes.

Its last year's export figure was 2.37 million tonnes.

* * *

DECLINE IN SHRIMP IMPORTS INTO JAPAN

There was a fall of 4.3% in imports into Japan from January to September, 1982. In quantitative

terms, the exports fell from 100,118 tons to 95,773 tons. This was because of short fall in exports from several countries including Indonesia, China, Thailand, Taiwan and Pakistan. The fall in exports from China was 35.8% and from Indonesia 6.2%.

* * *

IMPORT OF SMALLER PACKS BY JAPAN

Japanese importers have started importing 1.5 kg. block HL White from Thailand for the first time. There were also orders for 1.3 kg. packs. The Japanese consumers are preferring smaller packs in view of the high price of 2 kg. block, which need repacking.

* * *

CULTURE SHRIMP PRODUCTION IN TAIWAN

A sharp increase in black tiger prawn production from culture ponds is expected in Taiwan. The estimate is that the production is likely to rise from 8,000 to 10,000 tons during the current year. Most of this production will go to Japan in live and frozen form. It may be mentioned here that the Government of Taiwan encourages prawn farming by providing soft loans to prawn farmers.

* * *

SECOND ASIA FISH INTERNATIONAL CONFERENCE IN SINGAPORE IN 1983

Fishing opportunities, fish finding, catching, handling, processing and marketing, and investment in fisheries will be the themes of the three-day Asiafish 83 International conference to be held in the Century Park Sheraton Hotel, Singapore, from September 7 to 9 next year.

This will be the second International Conference on Fisheries Investment and Development in South-east Asia and the Pacific. The first was held in Singapore in June 1981.

Asiafish 83 is inviting people prominent in fisheries and fishery services in many parts of the world to present papers within the main themes. Subjects will include the development potential of skipjack tuna fishing in Asian and Pacific waters; fresh and brackish water aquaculture with particular emphasis on the potential of tropical prawn farming; the future design and construction of fishing craft suitable for the region; advances in fish finding and in catching methods; improvements in fuel saving; quality and health controls in fish handling; opening up and holding export markets; the funding of fishery projects; and the role and scope of joint ventures.

The world-wide fisheries consultancy, Fisheries Development Ltd. of London, will again be organising the conference, this time in cooperation with Heighway Publications Ltd. Publisher of "Fishing News International" and Fish Farming International". Members of the Asiafish 83 committee of these two companies are Ian Richardson and W. Philip Appleyard (Fisheries Development) and Harry Barret and Peter Hjul (Heighway Publications).

As in 1981, the organiser in Singapore will be Jimmy S. K. Lau, Project Director of Exhibition and Conference Management Centre (Pte) Ltd.

For further information about Asiafish 83, contact Fisheries Development Ltd. 37 Queen Street, London EC4R, IBY. Telex 291879. Telephone 01-2489777.

NEW PEAK IN JAPANESE FISH CATCHES, 1981

Japanese fish landings in 1981 reached a new height of over 11 million tonnes. This became possible on account of a record haul of pilchards exceeding 3 million

tonnes, although catches from deep sea zones fell by 73,000 tonnes.

FALL IN CATCH AND INCREASED EARNINGS IN USA

The fish landings in U.S.A. plummeted to 2.68 million tonnes in 1981, the lowest harvest since 1977. However the earnings rose to a record of 2400 million dollars. It is also stated that U.S.A. imported fishery products worth 2034 million dollars which is the highest on record.

INCREASE IN TAIWANESE CATCHES

Readers are aware that Taiwanese fish catches suffered in 1981. In the first three months of 1982 it is stated that there has been considerable improvement, the catches being of the order of 182,000 tonnes. This was far more than the catches landed in the first quarter of 1981.

OMAN-USA COOPERATION

Oman and the United States entered into a Co-operation Agreement on fisheries development of Oman. The agreement provides for an investment equivalent to U.S. \$ 17 million, to be implemented over a period of five years. The programme envisages, among others, the training of Oman's fishery technicians in the United States of America.

JAPANESE ASSISTANCE TO THAILAND

The Government of Thailand would soon be receiving a grant equivalent to 100 million bahts from the government of Japan to construct three inland fishery institutes in Surat Thani, Trang and Ayuthaya provinces. The grant has already been approved by the Japanese authorities.

Apart from this the government of Thailand would soon be establishing a fishery college in South Thailand.

INTERNATIONAL TUNA SECRETARIAT, COLUMBO

It is proposed to base over 100 tuna experts in Columbo at the newly set up international Tuna Secretariat, at Columbo. A few specialists have already reached the place.

The Secretariat will undertake research work on the migratory habits of tunas and the methods in tuna catching and other related matters of tuna industry.

Sri Lanka government is deeply interested in making best use of the availability of these facilities. The government proposes to attach local counter-parts to the experts who will form nucleus for the future development of tuna industry.

It is proposed by Sri Lanka to acquire ten secondhand tuna long liners in a period of four years. It is known that tunas move into the Exclusive Economic Zone of Sri Lanka from March to May.

MEXICO TO ENTER TUNA FIELD WITH A BANG

Mexican fishing enterprises are now engaged in building a sizeable tuna fleet. It is believed that by 1983 Mexico will have a total of 113 tuna vessels. In fact, this expansion started in 1980 when 20 purse seiners were added. Thereafter over 20 purse seiners and pole and line vessels were added in 1981. Significant additions are anticipated in 1982 and 1983. These efforts represent the fastest growth in tuna fleet in the history of Eastern Pacific Tuna Fishery.

THAILAND TO HELP MORACCO

The Morocco government has made approaches to Thailand for assistance in the development of its fishing industry. Discussions between the representatives of the two countries took place recently in Thailand. Morocco is in need of assistance particularly for the operation of number of fishing vessels which are being purchased by them from Japan. She needs experienced Thai fishermen for the training of local crew to operate the vessels.

SHRIMP REGULATIONS IN PAKISTAN

The Federal Fishing Board of Pakistan has taken a decision to observe the months of June and July as closed season for shrimp fishing along the coasts of Sind and Baluchistan. The Board has also decided to promote deep sea fishing through joint ventures. The fishing harbour at Karachi is to be developed further, under an authority to be set up. It is also proposed to set up a fishery training centre and also launch resource management projects with international assistance.

The sea fish landings of Pakistan were of the order of 280,000 tonnes in 1980. This represents a reduction of 20,000 tonnes over 1979 catches.

USSR APPREHENDS JAPANESE VESSEL

A Japanese fishing vessel with 9 crew members was apprehended by USSR recently in the Pacific Ocean off Northern Japan on the ground that the vessel was fishing well inside the Soviet Exclusive Economic Zone. The crew were expected to be tried in a USSR Court.

LAKSHADWEEP'S BUMPER SHARK CATCH

Recently the Lakshadweep fishermen were favoured with an

unexpected luck. It is known that around and underneath driftwood there would be tuna. So, having seen a driftwood, the fishermen conducted pole and line fishing around it, after chumming. The chummed live bait attracted lot of sharks in addition to the tuna. And they crowded around the small pole and line boat. The tuna were scared and left the area but the sharks remained and started hitting the boat from all sides. The clever fishermen withdrew the tuna gear and started operating lines with baited hooks, apart from chumming the waters. In 95 minutes, the fishermen caught 240 sharks which earned them equivalent of Rs. 27,000/-.

ECUADOR TO BUY 125 FISHING BOATS FROM TAIWAN

It is expected that Ecuador would be placing a purchase order for 125 boats from the Taiwan Machinery Manufacturing Corporation. The majority of them will be 9 metre long, while the others will be of 13 metres and of 18 metres length.

SHRIMP PRICE STRIKES HIGH IN JAPAN

Contrary to the belief that the Japanese consumer is posing resistance, there has been an increase of 30 to 40 per cent raise in the unit price of frozen shrimp sold in Japanese super markets.

The rise has been noted during the month of May 1982. Previously, during the same period, the prices were tagged far less. The sales were transacted on medium sizes 21/25 to 41/50 as against the big sizes.

However the sales fell quantitatively by 40 per cent from that of previous year.

ROUGHY AND PERCH SELL WELL IN US MRKETS

According to a market survey conducted by Fishing Industry Board, New Zealand in the United States of America, orange-roughy and deep sea perches have good market in that country. The most promising regions sited were Southern California and Texas.

VIETNAM'S PROGRESS IN MARINE FISH CATCHES

It is officially stated that during the first quarter of 1982 there has been a substantial increase in the marine catches of Vietnam. Apart from this, the collectives in the Mekong delta caught nearly 20,000 tonnes of fish and shrimp in the first quarter of 1982 of which more than 600 tonnes were exported.

HASHISH IN GRASS CARP

A foreign worker in Dubai, on his way back from his home to Dubai, was found carrying a grass carp. The customs officials were surprised at this and opened it, only to find that it was stuffed with two kilos of hashish.

JOINT VENTURES WITH SPAIN

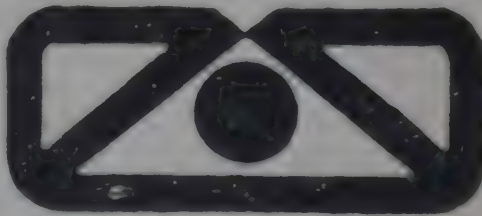
The Government of Spain are encouraging their fishery enterprises to enter into joint ventures with developing countries in the field of fishing. The Spanish Government also declared an incentive by way of exemption of import duty, which is at present 17% of the cost, for a certain quantity of marine products exported by Overseas Spanish joint venture companies. The Spanish National Bank is also providing credit up to 85% of the cost of fishing vessels to the Overseas Spanish joint venture companies for the purchase of old and new fishing vessels from Spain.

Our Modest Contribution to Indian Deep Sea Fishing Industry

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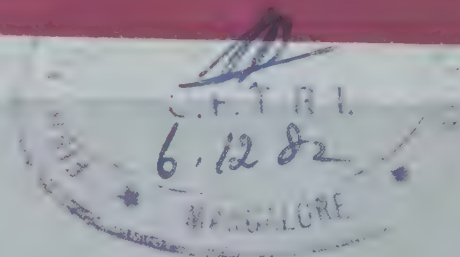
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Fishing Chimes

Comments:
The *42*
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Fishing Chimes

November 1982

Vol. 2

No. 8

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Letters to the Editor

Dear Sir,

I am very much thankful to you and all the floating staff at Visakhapatnam fishing harbour who have rendered help to us on the death of my husband late Mr. Kasper Fernando, a deck-hand under M/s. New India Fisheries Limited. I received a sum of Rs. 14,000/- from Mr. S. K. Nuruddin of M/s. New India Fisheries, Visakhapatnam, who has collected the money from the floating staff of fishing harbour. I am grateful for the help rendered to the floating staff on the trawlers of M/s. Srinivasa Sea Foods (P) Ltd., M/s. Phoenix India Ltd., M/s. Britannia Sea Foods, M/s. Vani Marines P. Ltd., M/s. Navabharat Ferro Alloys Corporation, M/s. Konkan Fisheries, M/s. Tata Oil Mills, M/s. Kerala Fisheries Development Corporation, M/s. Gujarat Agro Marines, M/s. A.P. Fisheries Corporation, M/s. Tamilnadu Fisheries Corporation, M/s. Marine Fisheries, M/s. New India Fisheries Ltd., and Mr. Amin, owner of M.F.T. Saraswati. All of them contributed generously.

Mrs. Desai Fernando
Tuticorin

* * *

Dear Sir,

You will be glad to know that most of the officers in Gujarat Fisheries Department are either subscribing or in the process of subscribing for 'Fishing Chimes'.

I thank you for reporting on one aspect of my paper read at the National Seminar on Fisheries Development in India, held at the Indian Institute of Management, Ahmedabad, in April 1982, in your

issue of July 1982. However two aspects were not mentioned in your report. These are:

1. Use of Mother Craft

(Carrier Vessel): The mother craft (carrier vessel) can tug along 5-6 small vessels with low H.P. to fishing grounds. The fishing vessels can go on fishing and the mother craft would gather the catch, come to the shore, collect ice, refuel, fuel and return to the fishing grounds. This is very practical and seems to appeal to fishermen more. The mother carrier can only be operated by a cooperative or the government and can be rented out to a group of 6-10 fishermen, preferably from the same family or village who can use it. Financing for the mother craft would be necessary together with incentives like subsidy, long pay-back period, less interest etc. The mother-craft can repay its loans in 2 or 3 seasons, monthly, through diesel savings in the operation of the towed fishing vessels.

2. USING SAILS WITH ENGINES

Many fishermen, mainly gill netters have responded to this. The wind assists them atleast in one of the to and fro trips and the diesel savings per trip are estimated to be between 20-40 litres depending on the size of boat and H.P. of the engine. If a boat undertakes four-day trips in a month, the savings would be Rs. 3000-6000/- in a season of 10 months per boat, only by use of sail. Trawlers can also adopt this and sails for the purpose can be designed by CIET.

The idea of multi-purpose fishing craft i.e. gill netter-cum-trawler-cum-hook and liner is also not out

of the realm. It is only a matter of design evolution. Even now many fishermen use some craft for gill netting and trawling. This will increase fishing days. When one type of fishing fails the same type of craft can undertake other kinds of fishing. Hooks and lines were popular before the coming in of trawlers on fishing scene. These need to be revived and popularised.

The days for 'trawling only' and 'prawns only' have passed by. It is high time that we start on 'diesel savings' and 'multi-purpose fishing', or else the bubble is bound to burst with a bang.

N. D. Chhaya
Port Okha

* * *

Dear Sir,

Fish Farmer's Development Agencies have been set up to improve all derelict water areas and to bring all the government and private water areas under intensive fish culture for augmenting fish production. Previously unit cost for improvement of a derelict water area was Rs. 4000/- and the input provision for the first year was Rs. 500/- per Ac. 25% subsidy was provided in the scheme over both the items subject to a maximum of Rs. 1000/- and Rs. 125/- respectively. On the general demand of the fish culturists and recommendation of F.F.D.A. the total lean component per farmer has now been raised to Rs. 10000/- and Rs. 2500/- per acre keeping the subsidy component the same i.e. Rs. 1000/- and 125/- per Ac. only respectively. This subsidy is very less and deserves consideration for upward revision as the farmers engaged in this profession are very poor. World Bank Review Mission has also suggested raising of subsidy at par with that of other schemes. Through your esteemed Journal I want to bring this issue

to the notice of Bihar Government and Government of India for giving their conscious thought to it in the right earnest to make the FFDA schemes more lucrative and successful.

R. N. Singh
Chapra (Bihar)

Dear Sir,

We are distressed to notice a news item in your August 1982 issue regarding M.F.T. "Saraswati": which apparently you have published without ascertaining the facts either from us or the owners of the vessel.

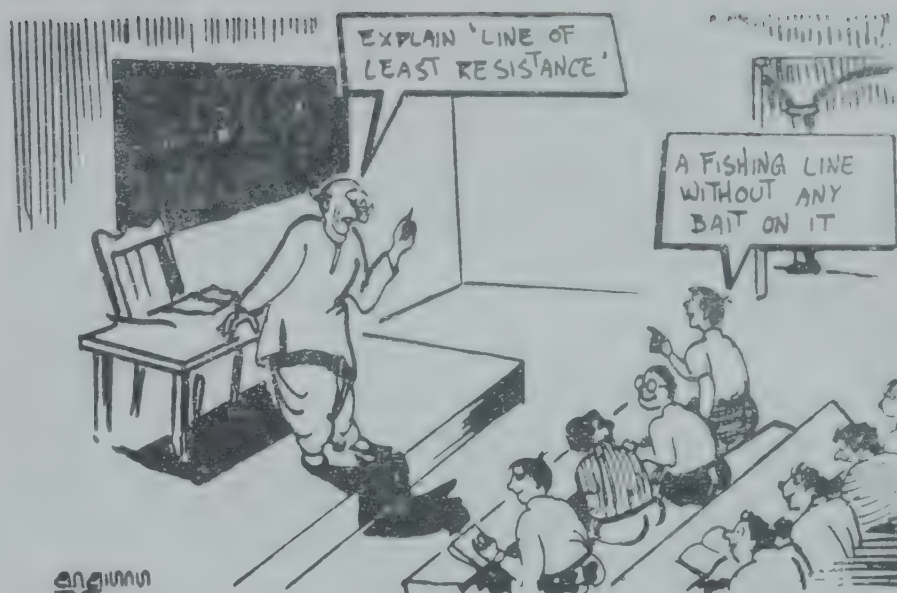
Capt. S. K. Amin, the owner approached us when the propeller was totally damaged for repairs. Upon inspection it was agreed that:

- (i) the old propeller had failed only due to very poor raw material of unknown metallurgical composition and
- (ii) any repairs tried on the same would as such be only a temporary measure to tide over until the time the new propeller on order was received.

It was only on this express condition that we undertook the repairs and the new propeller was fitted when the same was received. The owners were happy that the vessel could make five complete voyages and was not laid up awaiting a propeller.

We hope you will publish these facts to erase the erroneous impression about our workmanship caused by your publication. We would also appreciate your checking any news concerning us in future before you choose to publish the same.

Yours faithfully,
Sd/- S. Srihari
Manager
Chowgule & Co. Pvt. Ltd.
Visakhapatnam
Dt: 13-10-1982.



Dear Sir,

A Fishing Vessel is technically and legally a ship coming under the Merchant Shipping Act, 1958 and subject to full control of Director General of Shipping like a commercial ship for technical operation and manning. Fishing vessels are also eligible for loans from the Shipping Development Fund Committee under the Act.

There has been a considerable increase in the fishing fleet of the country. In the 6th Plan it is proposed to introduced 350 numbers of deep sea fishing vessels. The administration of these vessels requires a separate set-up, as the operational requirements are different from cargo vessels. Therefore, for the purpose of the administration of these vessels under the Merchant Shipping Act, Government have to consider favourably the appointment of another Director-General under the Merchant Shipping Act. Then only it will be possible for the effective monitoring of activities of fishing vessels. The Director General of Shipping (Fishing Vessels) will have to be a qualified and competent person in the field.

If such a separate appointment is not possible, the person to be appointed as Director General

of Shipping, to look after both commercial as well as fishing vessels, will have to be a qualified and competent person relating to both the sectors.

Unfortunately, the principal officers appointed under the M.S. Act responsible for the administration of the M.S. Act are excluded for prior consideration in regard to the post of Director General of Shipping even though the administrative reforms commission has also recommended this approach.

Pending settlement of this question, for filling up the post of the present vacancy of Senior Deputy Director General of Shipping now pending selection by UPSC, claims of experts having professional qualifications may not be ignored. Any selections without considering their candidature will be improper. In the forthcoming selections for the post of Sr. Dy. Director General of Shipping claims of technical personnel having the requisite service should be considered before selection is done for the post to avoid injustice. It should be proper and in line with the policy of ministry of home affairs as well.

J. Ramachandra
Madras

The Elusive Three Fifty Fishing Vessels

There appears to be a curse on the Indian deep sea fishing industry. In the Fourth and Fifth Plans it was envisaged that 200 nos. of deep sea fishing vessels in each of the plans should be introduced. At the end of the Fifth Plan the introduction went up to the extent of about 50 Nos. against 400 Nos.

In the Sixth Plan, the target for the introduction was set at 350 Nos. Half of the plan period is over and so far nine trawlers on ownership basis and seven pairs trawlers and 6 single trawlers on charter have been introduced. If this pace of progress is any guide, one can assume that the target will remain dismally unfulfilled.

There seems to be no pointed awareness of the situation in the Union Department of Agriculture. The programme is being implemented in a perfunctory manner, bereft of the drive that the activity requires to gain momentum.

SLOWER THAN A SNAIL

Under the scheme introduced in 1977 for the import of over 100 trawlers, so far only nine trawlers have been imported. The reason for this slow progress is the fact that officials in the fisheries division of the department of agriculture get bogged down in minor issues, losing sight of the target. When a company applies for import from a particular source,

the issue of approval is delayed inordinately. Similarly, the forwarding of their loan applications is also done after a long lapse of time. In the meanwhile the builders either increase the price or withdraw their offers. This necessitates another application for a further change in source. Thus it becomes a vicious circle. Instead, if the fisheries division takes quick decisions and act briskly the complication will be far less.

Delays in decisions have made the share holders in several companies to sell their shares. Thus changes in the controlling interests and managements came into being. These have led to the suspicion that money is being made through the companies, although it should not be a matter of real concern to the government. The objective is to introduce deep sea fishing vessels. As long as the company is the same, changes in managements should not bother the government, provided that those in management have the capabilities to run the vessels.

Lacking the ability to push through a programme and perhaps taking shelter under the frequent changes in managements and periodical requests for changes in source of import (for which the applicants alone are not to be blamed), the Union department of agriculture seems to have decided to put an end to the consideration of all pending cases under the 1977 scheme.

LAME EXCUSES

The lowering down of this curtain is probably done out of desperation, but this would not give any credit to those at the helm of affairs. It is a matter of great shame that a department wedded to developmental activities and having decades of experience in implementing developmental programmes has failed in this important task. Instead of getting bogged down in petty issues, had the department found quick solutions at each stage in respect of each case by now the nation would have had an addition of over 100 deep sea fishing vessels.

The implementation of the programme seems to have been undertaken in the recent years on the premise that the applicants are crafty men and that they should be controlled and outwitted. It was in the same way of problems being handled by district magistrates, superintendents of police and at collectorates. Such an approach is hardly the way to deal with developmental matters, which have targets to reach. Functionaries with abilities have to push aside hurdles and move towards the targets. The department of agriculture allowed themselves to be detained by hurdles. Unless there is a change in the style of functioning in the fisheries division, the outlook for development in the deep sea fisheries sector appears to be very bleak.

So much of time and energy have been expended by the government, shipyards and the industry on indigenous construction of fishing vessels. All these bodies are anxious for the building of deep sea fishing vessels in the country. Such being the case the lack of progress must be due to certain factors. Although these factors have been identified,

very little serious effort has been made to neutralise them. This is because the shipyards have their own work and their interest in fishing vessels is only marginal. If they get orders they will book them. If they do not get, they have their other work. So far as buyers are concerned, they are wary on account of the known substandard performance of some of the vessels constructed at Indian shipyards. These two attitudes can be reconciled, not merely by announcing subsidies, but through solid work to melt them. The shipyards should secure foreign expertise to develop reliable drawings and to supervise construction. This will put some measure of confidence in the minds of buyers. On the financing aspects, if SDFC loans are made available, larger houses are likely to avail of them for construction of vessels at Indian shipyards. So far as medium/small companies are concerned the guarantees towards SDFC loans given by the shipyards should be accepted. Concrete measures on the above lines may promote indigenous construction.

A NATIONAL LEVEL CORPORATION

In our earlier issues, we had pleaded for the setting up of a national level corporation to promote deep sea fishing. Our suggestion was that such a corporation can acquire vessels through indigenous construction and give them on charter or hire-purchase to fishing companies. We understand that the union department of agriculture, has a proposal to set up a national deep sea fishing corporation. One has to hope that this will materialise and the above mentioned function also would be entrusted to them. The setting up of such a corporation will provide the much needed field set-up to give a fillip to deep sea fishing.

So far as charters are concerned, it is clear that there has been some progress, although not significant. Several applications for charter permissions are pouring into Krishibhavan. One cannot expect clearances to come as fast as the pouring in of the applications. Yet, it will be reasonable to expect that within about three months of the application, decisions would be made known. Delays in clearance, as is happening now, has the effect of inhibiting foreign owners from giving offers. It also throws an undesirable image

abroad. Foreign owners can reconcile themselves with quick rejections, but not long delayed rejections or approvals.

As Mr. Chidambaram has observed in an interview (Oct. 1982 issue of **FISHING CHIMES**), the first need is to develop deep sea fishing. Indigenous construction will follow this automatically. Import or indigenous construction or charters, the need is to make headway. After some development, priorities can be determined.

COMMENTS

PROTECTION TO OUR RIVERINE FISHERIES

Our riverine fisheries are a national heritage. They constitute a majority of wild life in our rivers. Owing to overfishing, the riverine fisheries are getting depleted. Conservation of these resources is of paramount importance to maintain the ecosystems of the rivers.

The subject was discussed at a symposium on 'Ecology of Ganges river system' held at Hardwar from 10 to 12 Oct, 1982, held under the auspices of the Indian Association of Environmental Biologists, Aligarh and organised under the leadership of Dr. A. P. Tyagi of the Department of Zoology, D.A.V. (P.G.) College, Muzzaffarnagar, U.P.

It was recommended at the symposium that fishing from rivers should be banned. The implementation of the ban should be achieved in a progressive manner.

FISHERY CONTRIBUTION FROM RIVERS

The annual catch from our rivers is estimated at 28,000 tonnes. The total annual inland fish production being about 900,000 tonnes, the riverine production works out to a mere 3%. The stoppage of fishing from rivers would not thus reduce inland fish production perceptibly. However, it will create a major social problem. A large number of fishermen depending on river fishing will be thrown out of their means for livelihood.

There can be no two opinions on the need to protect our riverine fisheries. However, considering the resulting plight of fishermen, a long range plan to achieve the protection is necessary. The implementation of such a plan requires a multi-pronged strategy.

REHABILITATION OF RIVERINE FISHERMEN

Riverine fishery was the main source of inland fish supply to the people, before the development of culture fishery technology. The phenomenal development of this technology has lessened the need to depend on rivers as the major source of inland fish supply. One aspect of the strategy can therefore be divert the fishermen from riverine fishing towards culture fisheries.

FFDA

After collecting particulars of families dependent on river fisheries, each of the families may be prevailed upon to nominate a member of the family to come under the fold of fish farmers development agencies. Such nominated candidates can be trained in the techniques of intensive fish culture and all the other benefits under the scheme may be extended to them.

Under a licencing system, in token of the co-operation extended by them, the heads of families sponsoring candidates for training under FFDA may be given licences for fishing in specified sectors of the rivers, with the condition that no fishing will be allowed in the breeding season. As the new generation with the trained personnel as the nucleus takes charge of the family, the tradition of culture fisheries will take root and the pressure on river fishing is likely to come down.

While fishing may be discouraged progressively through considerate implementation of the law, catching of spawn for rearing and stocking in tanks and ponds can be encouraged. Not more than 20% of the spawn can be caught with the best possible efforts and the rest will be in the river to develop.

Thus, while the fish stocks will be the capital, interest by way of spawn collection, can be utilised for rearing and stocking tanks and ponds.

While the implementation of the strategy for sometime can be through issue of limited number of licences, the enforcement of law to prevent killing of mature fish during the breeding season has to be very strict. In course of time, the number of licence to be issued can be reduced progressively, with reference to the progressive rehabilitation of fishermen in the culture sector. The total

stoppage of fishing in rivers can be achieved over a long period of time.

The above mentioned strategy is relevant only for open river systems. The waters under reservoirs require a different strategy. Reservoirs are partly amenable to culture techniques. Several reservoirs are stocked with fingerlings. There are regulatory measures in force in most of them. The developmental aims in reservoirs should therefore be to secure a sustainable yield, maintaining continuously a desirable level of stocks.

COMMENTS

FISH PRODUCERS IRK ON THE SECOND AMENDMENT BILL OF WEST BENGAL LAND REFORMS ACT (1955)

The 2nd amendment bill of West Bengal Land Reforms Act (1955) which was passed by the West Bengal Assembly on April 9, 1981 restricts the ownership of Inland fisheries areas for each individual to 17.5 acres only.

The move was part of West Bengal Government's efforts to acquire more land for distribution among the poor peasantry.

This has however created a wide resentment among the fish farmers and the Fish Producers Association of Chabbi Paraganas who have staunchly protested against it.

In a memorandum submitted to the President of India on August 25, 1981, the Fish Association said that the move by the West Bengal Government was 'to polarise people into different divisions for voting blocks to perpetuate their power by destroying the means of production and back bones of the entrepreneurs in the name of welfare of the people'.

Under the 2nd Amendment bill even the bheris or 'tank fisheries' also come under the ceiling. There is no provision for compensation under the new bill to those whose excess land would be vested the government.

Moreover, the nature of the land should not be changed from the time the amendment was passed in the assembly. That means a tank fishery should not be converted into any other form. And now questions arise as to how the excess area of tank would remain in its same form and still be divided? There are several other strange points that give no answer in the new bill.

Firstly, the excess tank area is difficult to demarcate. As it is, fisheries are a major source for livelihood of millions of people around Calcutta alone. The sewage water generated in the city of Calcutta is best utilised for fish production around the city, feeding thousands of poor people and giving employment to several for over 10 months a year. Bheri fisheries developed in the Salt Lake region situated by the side of Calcutta utilise the sewage water for the yield of fish. According to



the fisheries department about 8 to 10 lakh people are dependent on the culture fisheries that have developed in this region. Export earnings from the Salt Lake region are expected to reach a Rs. 100 crore figure in near future. During 1980 government of West Bengal has earned about Rs. 24 crores by

exporting cultured prawns.

In the interests of increased fish production for meeting the fish demands of the people of West Bengal, it is desirable that the provision for limiting the area of fishing waters owned by individuals is deleted in the second amendment bill.

Indian waters abound in fish and Britannia has entered fishing as part of the national policy to organise a more scientific exploitation of resources in future. Catches are landed in seafresh condition and speedily processed to preserve the natural product quality.

The Britannia fleet of 6 trawlers, include two modern 23 metre steel vessels imported from Mexico it is proposed to augment the fleet in a phased manner, and possibilities of entering the field of deep-sea fishing are being explored currently.

Supplementing these efforts at sea is a programme of developing brackish water prawn culture and Britannia is among the pioneers investigating this area. The objective in both cases is to secure the freshest and best quality raw materials.

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REPORT

SYMPOSIUM ON ECOLOGY OF GANGES RIVER SYSTEM

10-12 Oct. 1982, Hardwar

A symposium on Ecology of Ganges River System was organised by the Laboratory of Fisheries Biology, Department of Zoology, D.A.V. (P.G) College, Muzaffarnagar, under the auspices of the Indian Association of Environmental Biologists, Aligarh.

The symposium was inaugurated by Dr. K. M. Tiwari, President, Forest Research Institute, Dehra Dun. Dr. G. S. Shukla presided over the function. Dr. A. P. Tyagi welcomed the gathering. The participants included, Prof. K. C. Misra, Retired Professor of Botany, Benares Hindu University, Prof. G. S. Shukla, Retired Professor of Zoology, Gorakhpur University, Dr. B. P. Agarwal, Principal, Dr. R. C. Delela, Dr. A. P. Tyagi, Dr. K. V. Sastry, Dr. V. K. Sharma and others from D.A.V. College, Muzaffarnagar, Dr. B. D. Joshi, from Gurukul Kangri Vishwavidyalaya, Hardwar and several others.

POLLUTED GANGES

In his presidential address, Prof. Shukla referred to the heavy pollution of the river at various points caused by the release of untreated effluents from various factories located close to the river and to the heavy siltation, which was making the river shallow, caused due to rapid deforestation. He deplored the absence of

monitoring agencies. He said that a set-up was needed to know the exact nature of pollutants and their effect on fish life, and the safety limits of various constituents of the effluents. There were frequent reports of massive fish mortalities in and around places where effluents flowed into the river. He suggested that government should introduce a mechanism of monitoring the activity, with the collaboration of workers in the field.

Dr. Tiwari, in his inaugural address said that in the past three decades the ecology of Ganges deteriorated fast. Deforestation had led to heavier floods. This called for management of forests aimed at sustained yields. 8000 sq. km. of forests in swamps had to be protected and 6000 sq. km. were to be covered with afforestation. The concentration in afforestation was on Eucalyptus which required lot of water. It was desirable to think of alternatives such as *Dulbergia sissoo*. The ecological status of Eucalyptus in the Ganges system needed close study. Fish life in the river depended on depth and congenial water conditions and both afforestation and prevention of pollution had a direct bearing on this. Dr. Tiwari further observed that real degradation took place because of conversion of deforested areas into agricultural lands.

THAMES EXAMPLE

He mentioned that at one stage Thames river in England was heavily polluted. Now, on account of the steps taken by the government, the river was pollution-free. Late Pundit Malavva had a plan to keep Ganges free from pollution, but it was not implemented. Pollution of Ganges was not only harming fish life but also human populations. Owing to effect of pollutants several water borne diseases were spreading.

Prof. Misra pointed out that Ganges had three different ecological systems, one in the mountain section, another in the plains and the third in the estuarine section. Hardwar presented the interface from mountains to plains. Plains portion of the river in U.P., Bihar and northern part of West Bengal was seriously affected through man-made pollution. Saying that pollution came from affluence, he emphasised the need for a massive programme to educate people on the evils of pollution and at the same time to introduce effective measures to prevent pollution, without in any way jeopardising industrial growth. Then alone the fish life of the river could be saved.

CHEMICALS & EXPLOSIONS

Dr. B. D. Joshi pleaded for the construction of mini-reservoirs in the hill valleys to check silting in the river. Dr. K. V. Sastry highlighted effects of exposure of murels to pollutants such as chromium, mercuric chloride, Quinalphos and cadmium. Dr. Ranjana Saxena and Dr. A. P. Tyagi referred to the prevalent practice of using poison and explosives in the river and its tributaries by men of the armed

services and pleaded for its stoppage. Mr. K. P. Sharma, Chief Executive Officer, F.F.D.A. Tonk, Rajasthan brought out the interdependence of the various uses of river resources and proposed a plan for optimal riverine fisheries development. Dr. V. K. Sharma pleaded for the plantation of *Eucalyptus tereticornis* near canal sides and Ganges catchment area. Toxic effects of zinc in pollutants was brought by Dr. V. P. Agarwal and others. The effect of textile dyes in effluents on air breathing fishery was explained by Dr. K. A. Goel and others. The biology of *Trionyx gangeticus* of Yamuna was presented by Dr. K. P. Singh and Sangeeta Rajput. Dr. A. P. Tyagi had pleaded for special emphasis on co-ordination among the government agencies dealing with the environment, laboratory work and executive staff.

DIVERT FISHERMEN FROM RIVERS TO PONDS

Mr. J. V. H. Dixitulu, pointing out the rapid depletion in riverine fisheries proposed that steps should be taken to reduce fishing pressure in rivers. He said that, since culture fishery technology had been well developed, riverine fishermen, particularly of the younger generation should be trained in culture fisheries technology and help extended to them under fish farmer's development agencies.

It should be the aim to achieve a total ban in river fishing over a period of time during which riverine fishermen may be rehabilitated in the culture fisheries sector, he said. In the meanwhile, fishing in rivers may be permitted through a rational issue of licenses while preventing the catching of mature fish during

breeding season through stricter enforcement of regulations.

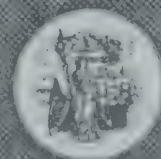
RECOMMENDATIONS

In the end, the Symposium recommended that (a) effective afforestation programmes to control silting may be enforced, (b) an effective field organisation backed by laboratories may be developed for systematic analysis of effluents and for implementing measures to make the effluents harmless to fish life (c) a mechanism to co-ordinate the efforts of various bodies engaged in environmental work may be established, and (d) fish life in rivers may be declared as a national heritage and treated as wild life. In a progressive manner, total ban on riverine fishing may be imposed, while simultaneously rehabilitating riverine fishermen to take to culture fisheries, by extending all supplies and services available under fish farmer's development agencies.

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INTRODUCING PERSONALITIES

V. Sankarasubbaiyan

DIRECTOR OF FISHERIES, TAMILNADU.

Mr. V. Sankarasubbaiyan, has taken charge as Director of Fisheries, Tamil Nadu, and Managing Director of the Tamil Nadu Fisheries Development Corporation from April 25, 1982. He belongs to the Indian Administrative Service, Tamil Nadu cadre.

Born on August 20, 1936, Mr. Sankarasubbaiyan entered service on August 1961. His subject of study for post-graduation was Economics.

Initially he joined as Revenue Divisional Officer at Usilampatti, Madurai, on September 1962 and remained there till June 1964. Next, he became officer for land reforms, Mayuram, Thanjavur district and stayed in that post till March 1967. After this, he joined the Civil Supplies department as Rationing Officer, South Madras on April 1967 and remained in that job till March 1969. Later he joined the Transport Department and became the Regional Transport Officer, Coimbatore, which post he held from March 1969 to November that year.

Thereafter, Mr. Sankarasubbaiyan joined the Industries Department as Managing Director, North Arcot Dist., Co-operative Spinning Mills Ltd., Vellore and remained there from November 1969 to May 1972. Later he became the General Manager, Tamil Nadu Textile Corporation Mills, Coimbatore which post he held from May 1972 to June 1974. He took over as Commissioner of Madurai and remained in that post from June 1974 to March 1975. He was deputed to the United Kingdom for training at the Institute of Local Govt,



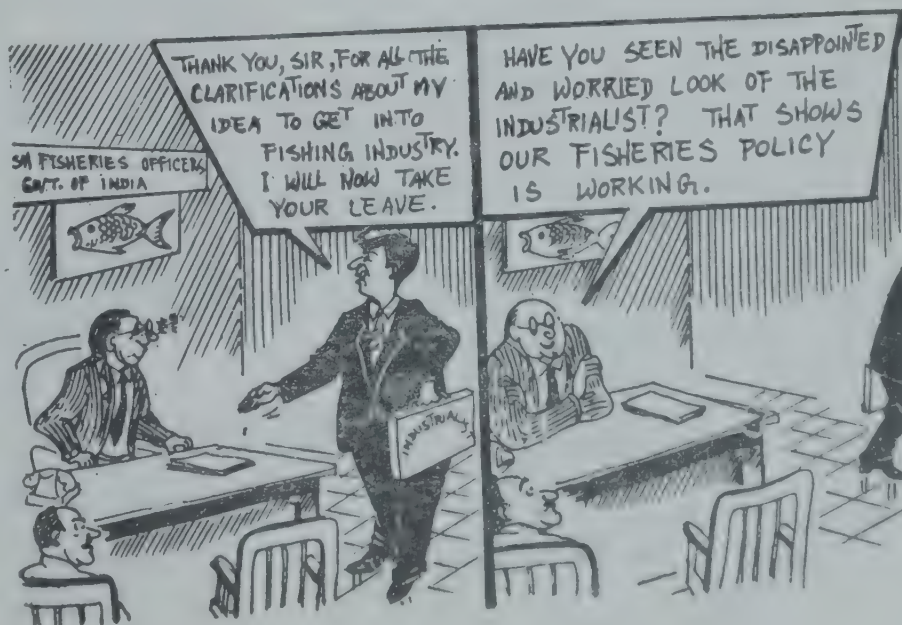
**MR. V. SANKARASUBBAIYAN,
DIRECTOR OF FISHERIES,
TAMIL NADU**

studies from April 1975 to August 1975. After return he took over as Special Officer, Coimbatore Municipality from August 1975 to May 1976.

On May 1976, Mr. Sankarasubbaiyan was appointed Collector, Kanyakumari district which post

he held till May 1978. From May 1978 to November 1980 he served as the Director of Handlooms and Textiles, Madras. He toured Australia, New Zealand and several Asian countries as a member of the Handloom Export Promotion team in March and April 1979. Thereafter he became the Joint Secretary to the Government, Finance Department, and remained in that post from November 1980 to November 1981. Later he served as the Managing Director, Tamil Nadu Water Supply and Drainage Board from October 1981 to March 1982. Later he was appointed Director of Fisheries and Managing Director of Tamil Nadu Fisheries Development Corporation. Recently he visited several west european capitals as part of an MPEDA team, to popularise Indian marine products.

Mr. Sankarasubbaiyan is known for his abilities at quickly grasping the essentials of any problem connected with developmental activities and formulating enforceable measures pass through problems. He has a dynamic and positive approach towards development. Under his leadership the development of fisheries in Tamil Nadu is expected to make giant strides.



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Capture Fisheries of Karnal Tehsil in Haryana

S. C. AGGARWAL

A Comprehensive knowledge of state of fisheries of each and every river is a pre-requisite for future planning and successful management of riverine fishery resources. With this aim in view preliminary studies of the river fisheries of Karnal Tehsil in Haryana were taken up.

STUDY AT LANDING POINTS

The material for the present investigation was collected from various fishing spots on the river Yamuna, its tributaries, canals and drains. There are 13 main landing centres on the river Yamuna in Karnal Tehsil and every Fish Landing Centre was visited to study the operation of gears and crafts. The data were mainly collected from the commercial catch recorded at Karnal wholesale market. There are in all five fish shops out of which one belongs to a fish contractor who, being the lessee for the fishing rights in the river obtained from the fisheries department, receives the total catch of the notified waters. The entire catch is assembled at this market for disposal by auction to the merchants and the retailers between fixed hours from 9 a.m. to 11 a.m. Catches brought from the distant fishing sites after disposal hours are stored in ice and placed for sale in the next morning. The catch data was collected by visiting the fish market throughout the year 1977.

YAMUNA

Yamuna is a perennial river, taking its origin from Yamnotri in Himalayas and is about 1000 kilometres in length. It covers 70 kms. of eastern boundary of Karnal Tehsil and the width varies from 300 to 400 mts. The water currents during monsoon are very fast while in summer and winter, the flow is milder.

FISHING GROUNDS

The main fishing grounds in this region are Chogramma Chandron, Ballam Majra, Tappu, Barakunda, Sehallpur, Mangalore, Subrimazra, Peer Baroali, Choutra, Petre Majra, Devipur, Pathergarh, Western Yamuna Canal, Sirsa Canal and Habri Canal. In the year 1977, 355 qtls. of fish were caught from the river Yamuna which contributed to 68% of the total

catch from the notified waters of the Tehsil. Chandren and Devipur were the main fishing grounds and contributed 17.3% and 16.8% respectively to the total catch.

FISHING METHODS

Drag net, gill net, cast net and lines are very popular and operated throughout the year. Patti (dragnet without pocket) is generally used in per-monsoon season. Chhamta (Pocket dragnet) is operated in left-over pools of the river after monsoon. The gill net (Phasla) is employed in oxbow lakes formed in the Yamuna, where the current is either very slow or no current at all. Cast nets are also operated. Long lines, hand lines and rod and lines are also popular among local fishermen. Spears with four or five pointed barbs are also used in shallow waters, Trap-fishing is also done at some places. Rock fishing is popular in the Yamuna in Agra district but is not operated in this region. Simple non powered boats are used in fishing. The fishing in the river Yamuna is seasonal and is generally done after monsoon when floods recede. Heavy catches are landed in the late June and early July, in Agra district.



However, in this region, post monsoon period i.e. October to February is the best fishing period in the river and July to August from the canals and drains.

Practically, there is no fishermen community in Haryana State.

Fishermen's parties from the neighbouring state like Uttar Pradesh and Bihar are called for fishing by the contractors. In the year 1977, four to ten fishermen daily worked for 361 days and 51.8 ton of fish was caught. The details are shown in table I.

TABLE I
MONTH-WISE FISHING TREND

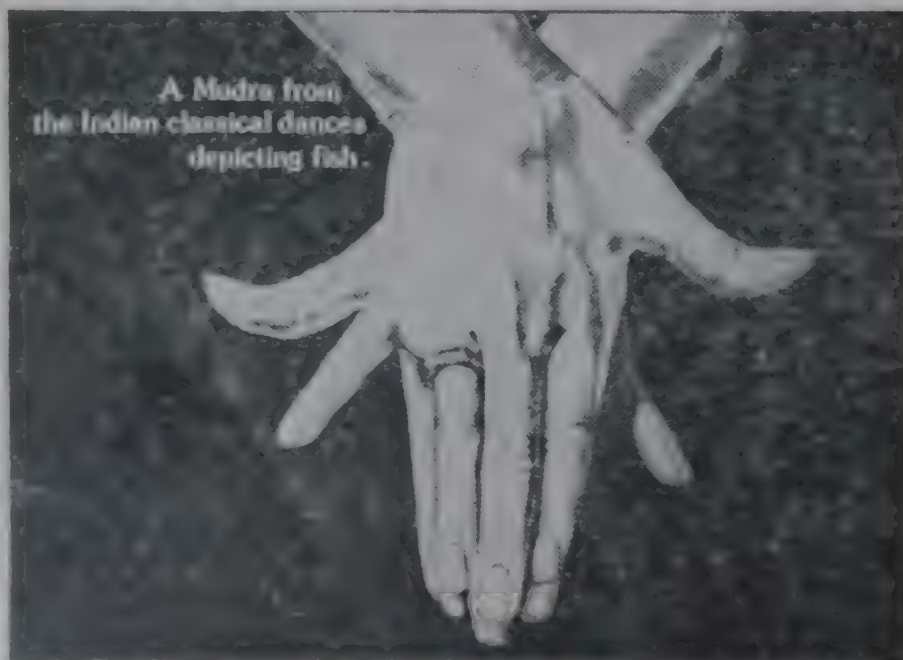
Month	No. of fishing days	No. of fishermen	Total Fish catch (in Kg.)	Average catch per day Kg.	Average catch per fisherman in Kg.
January	30	240	3021	100.7	12.6
February	28	112	5706	204.0	51.0
March	30	150	3426	114.2	22.8
April	30	180	4020	134.0	22.3
May	30	180	3432	114.4	19.1
June	29	232	3765	123.5	15.4
July	31	248	4461	137.4	17.2
August	31	310	6540	203.0	20.8
September	30	300	3345	111.5	11.15
October	31	248	5400	174.0	21.7
November	30	240	3720	124.0	15.5
December	31	240	5061	163.0	20.3
Total:	361	2680	51897	143.7	19.3

COMPOSITION

There were 76 species belonging to 32 genera and 14 families in the region. The species belonged to the families of Clupeidae, Notopteridae, Cyprinidae, Vebitidae, Siluridae, Bagariidae, Sisoridae, Schilbeidae, Heteropneustidae, Cyprinodontidae, Characidae, Nandidae, Anabantidae and Gobiidae. The major commercial species available in this region are *Currhina mrigala*, *Catla catla*, *Labeo rohita*, *Labeo calbasu*, *Mystus seenghala*, *Wallago attu*, *Rita spp*, *Bagarius bagarius* etc.

During the year 1977, the fishery comprised of cat fishes 60%, major carp 31.5% and misc species 8.5%. The average whole sale price of the fish was Rs. 480/- per qtl, while the retain price was Rs. 5.50 per qtl. It was observed that both retail and wholesale prices were high in winter as compared to summer season.

Fish has always been there in our past. It will always be in our future.



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trade with the world. Fish has an
ageless association with the
Indian way of life and culture

And today, this association is
even deeper. Marine products
are now a major source point of
our national growth and well-
being

The marine products industry
supports more than four million
people. It is a major influence on
the economic activity on the
entire Indian peninsula. It brings
in foreign exchange worth over
Rs. 250 crores every year.

Yes, Fish is our hope of the
future



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RECOMMENDATIONS

Since the cat fish and major carp fisheries of the rivers are of considerable importance, it would be worthwhile to protect them in the river Yammuna in this region. The amount and kind of fishing are the two main factors, which are within the control of man. In an effective control lies the proper management. Some of the suggested measures are as follows:

1. Mesh sizes of the major nets should be regulated and they should be large enough to allow escape of fishes less than two years old.
2. In order to enhance the breeding opportunities of the fish a stretch of 10 km. from the points of confluence in the river may be declared a fish sanctuary.

by a qualified Fisheries Officer to exclusively manage the affairs of these innumerable village ponds so that not even a square meter of culturable fresh water is wasted. The responsibilities of surveying, keeping of hydro-biological data, supply of carp seeds (fingerlings), eradication of weed infested ponds, arranging demonstrations, extending credit schemes (institutional financing by banks) to Panchayats to purchase necessary inputs and equipments, assisting them in harvesting and marketing etc. have to be fixed on these 'pond culture units'. The Fisheries Officers heading such units and the supporting technical staff will have enough work load and fish culture in ponds will become a reality. Unless such specific units for specific purposes are established, the resources will continue to go waste and fish production will remain stagnant.

PONDS IN KARNATAKA: SCOPE FOR FISH CULTURE

K. S. MRUTYUNJAYA

Villages in Karnataka State abound in natural ponds, small tanks and provide thousands of hectares of fresh water for fish culture. These village ponds, also called as 'Gokattas' cater to the other needs of the villagers such as supply of drinking water, washing their utensils and clothes, quenching the thirst of their cattle and serve as 'multipurpose water bowls'. These ponds are quite fertile by the very nature of their existence and intensive fish culture could be taken up in them without incurring extra cost on inputs such as organic manure and fish feed. These 'nutrient rich' ponds (as the cowdung is naturally fed into them by cattle during washing and drinking periods) are very congenial for carp culture. The Panchayats have to incur expenditure on fish seeds, (the only input) and can convert them into viable production units. At present only negligible numbers of village ponds have been

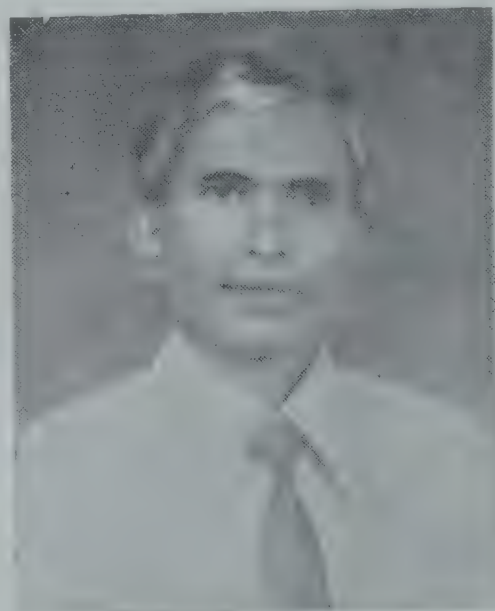
brought into the fold of fish culture.

Common Carp (*Cyprinus carpio*. Var. *Communis*) in combination with gangetic carps (catla, rohu and mrigal) are ideal for stocking these village ponds. In fact, common carp is preferable as it breeds naturally and the Panchayats (which are financially weak institutions) need not invest their money heavily on purchase of seed of this fish.

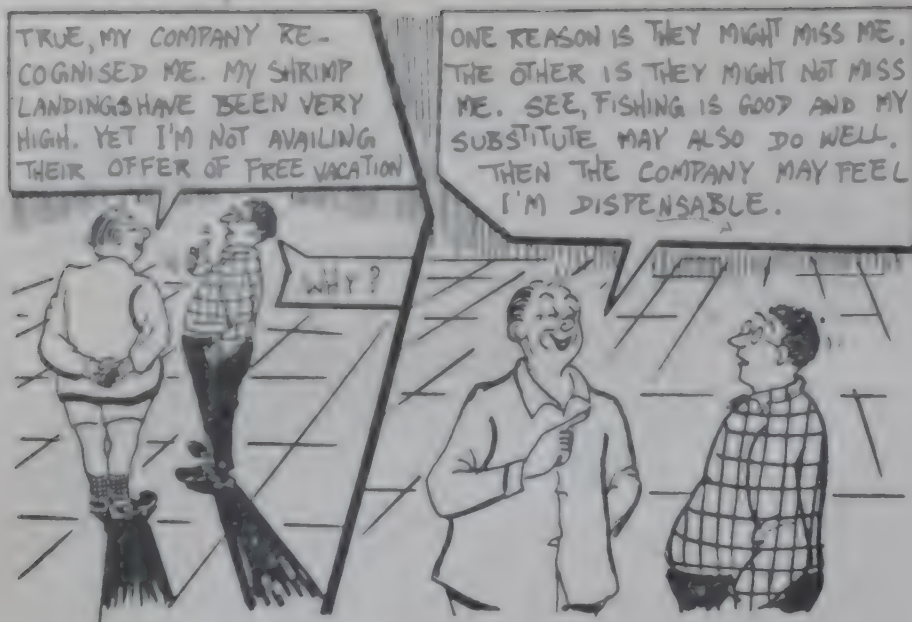
POND CULTURE UNITS NEEDED

Since the state department of fisheries (in the present organizational set up) is not in an absolute position now to give technical advice, demonstrate fish culture practices, educate the villagers, and carry the technical knowhow regarding culture practices, it is high time for the department to set up a 'pond culture unit' in each taluk headquarters headed

The Superintendents of Fisheries stationed in the taluk headquarters cannot be entrusted with this task as they are pre-occupied with the routine departmental programmes such as,



K.S. MRUTYUNJAYA



licencing, auctioning, fish seed rearing and stocking, and managing the affairs of the Cooperative Societies. Experience in fish culture has proved beyond doubt that the per hectare production in ponds is the highest. 5000 kg. of fish can be produced in one hectare of pond if it is properly managed.

SOME MEASURES TO BE TAKEN UP

Most of these village ponds are perennial during normal rainy years. A few of them are long seasonal. Their conditions can be improved by desilting, providing protected inlets (with wire

mesh), by strengthening bunds and by deweeding of weed infested ponds. Every village pond could be converted into an ideal fish production unit. A separate scheme has to be formulated to convert them into productive units, as, at present, their resources are not being utilised in the true sense. Of course we might have utilised a few of them under applied nutrition programme which is not the discussion in this topic. These village ponds are very ideal for composite fish culture and can be very well managed and harvesting of fish is also easy. The capital investment is not very much, and the produce is also assured. World Bank assistance could be sought for to bring this scheme into operation. The demand for fresh fish in the rural parts of the state could be met and the surplus production marketed in urban areas, if such a scheme is implemented.

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JAR HATCHERY FOR FISH SEED PRODUCTION

V. KRISHNASWAMY

Our Madras Representative

The Tamil Nadu Fisheries Department has established a jar hatchery at a cost of Rs. 1.63 lakhs at Bhavanisagar. It may be mentioned that a field hatchery was established by CIFRI earlier at Poongar Fish Farm. The advantage of jar hatchery is the higher percentage of survival of fish seed. Since all factors limiting the survival of fish seed are handled under controlled conditions, this technique is preferred over and above all the existing techniques.

SEED NEEDS

Tamil Nadu has about 3.69 lakh hectares of culturable water spread area comprising of tanks and ponds, major and minor irrigation tanks, seasonal tanks, reservoirs, etc. For optimum stocking of culturable waterspread areas out of these, about 350 million fish seed is required. The present level of production is only 51 million fingerlings, comprising 18 million seed from natural sources and 55 million from induced carp spawning centres, constituting about one-seventh of the total requirement. So it has become absolutely necessary to resort to modern techniques to meet the remaining demand for fish

seed. The hatchery technique is a boon to the inland pisciculturists.

JAR HATCHERY GIVES BETTER RESULTS

Jar hatchery technique is an improved method over the 'hapa' technique and ensures 90 per cent survival of fish hatchlings. 'Hapa' technique is commonly practised in all fish farms wherein an outer hapa of course cloth and inner hapa of mosquito net cloth are used. These 'hapas' are fixed in running waters, with the fertilised eggs placed in the inner or hatching hapa for hatching. In this technique only about 50 to 60 per cent survival of hatchlings can be expected. There are occasions where due to adverse climatic conditions and poor water quality, the fertilised eggs in 'hapas' die resulting in total loss. In jar hatchery, we can exercise control over water flow, water temperature and even water quality and thus ensure high survival even under adverse conditions.

The jar hatchery will function for the entire major carp season from May to September as also for hatching of grass carp and silver carp eggs. This is not useful

for common carp which has adhesive eggs.

ADVANTAGES

The greatest advantage of jar hatchery is its very low water requirement. One unit of 40 jars could handle 20-lakh fertilised eggs in a day. It would just need 20,000 litres of water. The space needed to accommodate the 40 jar unit would be nearly 10 square metres or at the most 20 square metres and such a unit is sufficient for hatching out 20 lakh eggs. Compared to this, hatching 'hapas' in ponds, require 150 square metres of space. Further, sun and rain would affect hatching in the open 'hapas', whereas they could be controlled in the hatchery. During summer, when air and water temperature shooting up over 32 degree centigrade, hatching will be adversely affected both in 'hapas' and in jars. But in the jar hatchery, it is possible to overcome this by airconditioning the room and maintaining temperature around 25 to 28 degrees centigrade.

The cost of jars which was once less than Rs. 100/- has now gone up to Rs. 200/- each and a set of 40 jars would cost Rs. 8,000. Accessories would cost another Rs. 2,000/-. These will last for ten years. Hence the cost per year for 20 lakh hatchlings would be Rs. 1,200. But in the case of 'hapas' one needs 200 of them (inner and outer) to handle 20 lakh hatchlings costing Rs. 9,000/-. Moreover, this would last only for two years involving more labour.

In a day, in a space of about 20 square metres, one can hatch out 20 lakh eggs with a survival of over 90 per cent. In the major carp season, (five months) over hundred rounds of hatching, producing 200 million eggs, can be handled in the hatchery.

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Hatchery capacity can be doubled by having a second unit of 40 jars.

An added advantage of jar hatchery is that in the same airconditioned room, even breeding can be done successfully. Breeders respond well at temperatures of 26 to 28 degrees centigrade.

Adverse water conditions can be changed in a jar hatchery. In summer, the bottom water of reservoirs contains hydrogen sulphide and this affects the hatching in ponds fed with reservoir waters (in 'hapas'). This could be treated in overhead tanks before supply to the hatchery jars. Thus, economy on space, water and cost makes jar hatching more preferable than 'hapas'. The field hatchery for carp eggs installed recently at Poongar fish farm, Bhavanisagar, (Tamil Nadu) has been giving encouraging results.

The overhead tank hatchery set up at Poongar farm costed less than Rs. 3,000/-. The system can be expanded or reduced according to the requirement. The installation and operation of the hatchery is simple and can be learnt easily. Further, all the components for this hatchery are locally available for enterprising fish farmers.

* * *

RELIEF SCHEME FOR FISHERMEN IN TAMIL NADU

A saving-cum-relief scheme has recently been introduced by the Government of Tamil Nadu aimed at assisting the coastal fishermen during lean fishing season. The scheme provides for the collection of an amount of Rs. 10/- per month from each fisherman for a period of nine months. This amount is paid to the fishermen at the rate of Rs. 60/- per month over a period of 3 lean fishing months.

trucks acquired by them with assistance from NCDC/ARDC, they supply fish seed procured from the Gujarat fisheries department and Calcutta to the farmers in time at the pond site.

MARKETING SYSTEM

The farmers receive assistance from the federation in the disposal of the fish harvested. The federation calls for tenders from fish merchants to cover the periods November to February and April to July. The contracts are awarded to the highest bidders.

PROGRESS

During 1979-80, 37 tonnes of fish were harvested from 45 ponds and sold for an amount of Rs. 1.5 lakhs. In 1980-81, 39 tonnes were harvested from these ponds and sold for an amount of Rs. 1.86 lakhs. During 1981-82, 38 tonnes were harvested and sold, bringing a return of Rs. 2.43 lakhs to the farmers.

MODEL TO OTHERS

The organisation and working style is a good model for the other inland fishery co-operatives in the country. The Gujarat fisheries department can duplicate the pattern in other districts, where FFDA's are not functioning. The other states can send representatives from their co-operative federations to Khaira to study the working of this federation. Based on this study, they can take steps to implement a similar programme.

The success achieved by the Khaira federation restores the faith of those who believe in co-operatives as a vehicle for achieving progress in fish production.

KHAIRA FISHERMEN'S FEDERATION MARCHES AHEAD

R. B. VASAVADA,
Our Gujarat Representative

The Khaira Fishermen's Co-operative Federation in Gujarat has achieved splendid progress in inland fish culture. The federation started its activities initially deriving support under the intensive fishery development scheme introduced by the Gujarat fisheries department. Later it strengthened its activities by receiving financial assistance from National Co-operative Development

Corporation and Agriculture Refinance and Development Corporation.

There are 45 fish farmers actively functioning under the federation. The federation acts mainly as a servicing agency. They have enabled the farmers to secure fishing rights in tanks and also organised financial assistance for their development. With

Story of Tribals as Good Fishermen: They Fish well in Gujarat's Kadana Reservoir

K. R. NARAYANAN

Manager (Development)

Gujarat Agro Marine Products Limited, Ahmedabad.



FISHING BOATS AT KADANA RESERVOIR

Thanks to the dual efforts of the Department of Fisheries and the Gujarat Agro-Marine Products Limited, Ahmedabad (a State owned Company engaged in

commercial fisheries activities), the local Aadi Vaasis (tribals) of area around Kadana, Reservoir, located on the river Mahisagar in the district of Panchmahal of

the State, have been able to create a permanent vocation for themselves through their involvement in capture fisheries. It may be a rare phenomenon in the history of social service that Gujarat Agro-Marine Products, a purely profit oriented commercial Organisation has taken to socio-economic development of the tribal Sector.

TRIBALS IN TROUBLE

The Kadana reservoir, with a water spread of 17,000 hectares (8000 ha. in Gujarat and 9,000 ha. in Rajasthan) was basically constructed for irrigation purposes. Prior to the advent of this Dam (1979), the local tribal population in the surrounding villages was engaged in agriculture. They became destitute with the coming up of the reservoir as they had to let go their agricultural lands and original profession. A good many of them were rehabilitated elsewhere. Some of them, however, chose to remain in the villages on the periphery of the dam.

These persons (numbering around 2000) had no permanent vocation and took to occasional agricultural pursuits. This being not remunerative, a good many turned into labourers, as they had no professional skill in any other field. Their condition deteriorated due to their negligible income. It is at that stage that the State Department of Fisheries rescued them with its tribal oriented inland fisheries development programmes.

TRAINING CENTRE FOR TRIBALS

As indicated previously, the Kadana reservoir is constructed on one of the major river systems of Gujarat viz the Mahisagar. This river system was being investigated by the Department of Fisheries since 1960 and it was found to sustain a very rich and perinneal fish resource. In fact, this river provides environmental advantages for the natural breeding of major carps. To develop capture fisheries, resources were available but there was a necessity for management in properly utilising the manpower and introducing capture techniques. The landless tribals were the only manpower but they lacked the professional skill in the capture techniques. This situation prompted the Department of Fisheries to set up a training centre at Kadana exclusively for the training of tribals (1980-81). The training involved capture fishing methods, fabrication of gear and general aspects of inland fisheries.

TRIBAL FISHERMEN'S COOPS

The Gujarat Agro-Marine Products was granted fishing rights for Kadana reservoir (1980). This Organisation decided to involve the local tribals in the fishing activities. Tribal fishermen's co-operatives were organised-one each at Kadana and Khedappa with a total



TRIBAL FISHERMEN OF KADANA

membership of 85. With the co-operation of the Fisheries Department the members of these societies were provided with loan from the Tribal Development Corporation (TDC) to procure boats and fishing gear.

The loans were subsidised to the extent of 50% by the Department of Fisheries. In the first year (1980-81) only 22 members came forward to procure fishing boats through the loans of TDC and subsidy from the Government.



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During 1981-82 the number of beneficiaries increased from 22 to 51 and it is expected that this number may go upto 80 during the later half of the financial year 1982-83.

RETURNS TO TRIBALS

A simple methodology to encourage fishing by the tribal fishermen has been adopted by the Gujarat Agro Marine Products. Instead of hiring the services of the private fishermen for the exploitation, the Gujarat Agro-Marine Products employed the local tribal fishermen. The remuneration has been fixed @ Rs. 3.50 per every kilogram of fish caught by the fishermen. Of the amount of Rs. 3.50, an amount of Rs. 3/- goes to the fishermen and Rs. 0.50 is credited towards the contribution

to the Co-operative Society. This system, based on the production incentive has made the fishermen to put forth efforts for increased capture, as the same is beneficial to themselves and the Co-operative Society. In this way, the fishermen and the Society have been able to earn a fairly good income.

ADVANTAGES OF THE PROJECT:

As can be seen from the foregoing, the tribals, who were leading a hand to mouth existence, have been able to have a permanent vocation for themselves and thrive in the fishing vocation through the intervention of the GAMP and the State Fisheries Department. The Kadana reservoir - one of the potential reservoirs of the State - has risen to the status of a commercial capture fisheries centre.

The agency had also reclaimed 3.5 hectares of area and brought the same under fish production.

The excellent work done by the Chief Executive Officer of the agency has led to the popularisation of fish culture as a generator of income, particularly among the weaker sections of the society.

Several persons have taken to fish culture, seeing the results of the activity undertaken by those under the fold of the agency.

The most popular species used for culture in Karimnagar is *Cyprinus carpio*, the common carp. The brown variety of this species yields to breeding with ease in this area. The local people have also developed a liking for the fish.

KARIMNAGAR FFDA IN A P HAS DONE WELL

The fish farmers development agency in Karimnagar district of Andhra Pradesh started functioning from January 1979. The scheme has been implemented so far for 3 years 9 months. Four seasons were covered in stocking tanks and ponds with fish seed and three crops were harvested.

this, 11.93 lakhs of seed was stocked, giving a per hectare rate of 4000 Nos. per annum.

ACHIEVEMENTS

The agency achieved an average fish production of 1200 kg. per hectare which is a commendable performance, considering that the average production in the area prior to the agency's activity was around 200 kg/hectare. The results of harvesting were as follows.

Year	Area Harves- ted Ha	Qty. Harves- ted Tons	Income Rs.
1979-80	112	25.00	87,285
1980-81	117	43.75	1,75,004
1981-82	105	72.30	2,89,556

COVERAGE

Against a target of 400 hectares, 301 hectares have been brought under production. The achievement was thus 75%. While 200 farmers were to be trained, the agency provided training for 268 candidates, thus over-reaching the target. The target for stocking the water areas with seed was 12 lakh Nos. Against

MORE CAN BE DONE

Much more work can be done in the district, if greater support flows from the government. It is stated that the fisheries department was not fully aware of the good work done by the agency till recently. The need now is to maintain the present level of progress achieved by extending the required support to the farmers to continue the activity. Further to this, efforts at expanding the activity are necessary. Unemployed youth have to be attracted by providing them with training, allotment of ponds on lease, extending subsidies and loans for the developmental work.

The present level of subsidies, determined longback, are not adequate. These require suitable revision. The prospective entrepreneurs are hopeful that government would encourage them by introducing suitable revisions.

Startling Facts About *Trionyx gangeticus*

K.P. SINGH &
SANGEETA RAJPUT
ZOOLOGY DEPT.,
AGRA COLLEGE, AGRA

Trionyx gangeticus is a common and probably the largest turtle of the Ganges. It forms an important part of the ecosystem of the river. The meat of the turtle is a delicacy. There has been over exploitation of the species and is therefore declared as a protected species. Except a few occasional remarks by a few authors in the early part of the century, there is practically no published information on its biology. In this article, the results of our work on the various aspects of this turtle are presented. These include the activity cycles, sexual dimorphism, nesting, courtship, growth rate, population, food preferences, predation etc.

METHODS

The data for our work was gathered from the Yamuna river at Kailash, Agra. The turtles for the study were obtained from capture with hoof nets, dip nets, or by hand. The growth was determined by the methods of Sergeer (1973) and Sexton (1959): while the population by Lincoln's Index (Ernst and Ernst, 1972).

ACTIVITY CYCLES

This turtle is diurnal. At twilight they leave basking and feeding areas and submerge into waters. At sun rise, they climb on to logs or banks and bask for several hours before foraging during the late morning hours. After this they usually bask and remain inactive through mid day and early after-

noon. Foraging occurs again in the later afternoon and early evening. It appears that the annual activity period is controlled by water temperature. They usually bask in the autumn and spring and feed actively when the temperature is above 18°C.

In acute winter, they burrow at the bottom of the river. The over land movements may be forced by the drying up of habitat.

SEXUAL DIMORPHISM

The female of *Trionyx gangeticus* have longer plastron (under part of the shell), while males have longer carapaces (upper part of the shell). The males can further be differentiated by their elongated foreclaws and the pre-anal tail length.

COURTSHIP

On May 17, 1982 the authors observed what appeared to be the entire courtship act of the species. The turtles were kept in an approximately 3 sq. mtr. terrarium. At 1.00 p.m. the male (325 mm long) started pursuing the female (341 mm long). The male chased her into shallow waters (7.5 cm) and repeatedly bit her hindquarters, especially her thighs. This continued for about 5 minutes, and then he moved around her side so as to face her and continued biting at her forelegs and head. Eventually he pulled his head in slightly, extended his forelegs held closely together to the limit, palms outward, and began titillating the sides of her face and neck with his elongated curved foreclaws.

This continued for some time and later he moved around her side and placed his hindfeet under the posterior edge of her carapace and locked them above her pulled-in hindfeet for support. His fore limbs were rested on her carapace. After several attempts he could bring his tail under hers and the coition was affected. The contact was broken at 3.30 p.m. The female remained passive throughout, moving about only occasionally. Other specimens of the same terrarium ignored the courtship activities.

NESTING

Nesting takes place in May and June. Females dig a hole in the sand for laying the eggs. Nearly six eggs are laid in one hole or nest. The nest becomes heated during the day and gets cooled in the night. The length of incubation is related to factors that affect heat transfer to and from the soil. A female *Trionyx gangeticus* was observed on the 17th June 1981 laying eggs and next morning the area was covered with screening by us. The nest was kept under observation and on August 13 the hatchlings emerged, after a period of 57 days. This is the first time the incubation period has been reported for this species.

GROWTH

This turtle shows considerable variation in growth at a given age. However the hatchlings grow faster and the percentage of growth in the first year is 214 mm in female and 205.1 mm in males. The growth rate declines steadily as the turtle increases in size. Females have long plastrons while males have long carapaces. Females are slightly larger at hatching than males, and retain the size advantage throughout their

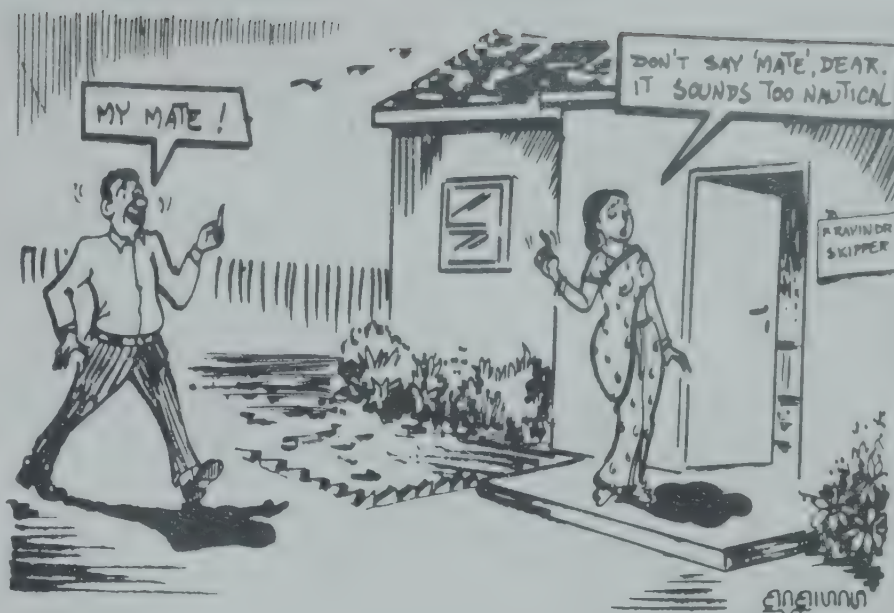
lives. The shorter male plastron may be a copulatory adaptation. The species attain adult shape in one year. There is levelling of growth rate at about 10 years in males and at 9 years in females. This perhaps corresponds to the attainment of the sexual maturity. This turtle does not start feeding in spring until the water temperature reaches 18°C, although they are active at lower water temperature. High summer water temperature (32°C) causes this species to become quiescent. So is the case when the river dries up.

POPULATION DYNAMICS

Our studies show that the population size of the turtle is approximately 1612 nos, in a Ac. 200.00 area of Yamuna river at Kailash (Agra). Thus the density is 8 nos of turtles per acre. As this estimate is based on the freely moving ones, it is possible that the density is much more. The population studies show that 45.2% are adult males, 31.5% adult females, and 23.3% juveniles. The sex ratio of males to females is 1.45:1, while that between adults and juveniles is 3.18:1. It is possible that fewer juveniles survive due to predation or severe weather.

DIET AND PREDATION

Trionyx gangeticus is largely carnivorous. It feeds mainly on fishes which forms 70% of its gut contents, followed by molluscs, crustaceans, and frogs which form 13%, 5%, and 4% of the gut contents respectively. Nearly 6% of the gut contents consist of materials of vegetable origin and 2% are of pebbles. One specimen had a complete femur of a large bird in its stomach, while another had a nearly complete pelvic girdle and sacral and two other vertebrae of frog.



This turtle is attracted by kneaded flour, which is used by fishermen for baiting their lines. So much so, very often, the fishermen find a number of these turtles out of the river, break their necks and throw them back into the river as they do lot of damage to their lines. They do this also because fishes avoid the places where there are turtles.

In captivity, they prefer old rotten flesh to everything else, although they do not desist from eating anything when they are hungry. They voraciously eat on the dead human bodies released into the river. They thus act as scavengers and save the water from pollution. Those who catch these turtles, keep rotten and foul smelling flesh in the river close to the shore. This attracts turtles. Once this congregation is noticed, the drag net is operated to catch them. While doing this, they make lot of noise which hastens the entry of the turtles into the net.

Thus turtle is regarded as an important article of diet. A very large number are captured in autumn when the river begins to sink. The fore and hind feet of the

captured ones are sewn together. In this condition they can live for months together. It is a common sight to see mutilated bodies of several adults on the banks of Yamuna. These must have been killed and partially eaten by carnivores, possibly foxes and vultures.

Although an important article of diet for a section of the human population, considering the fact that this is a protected species, effective steps are necessary to ensure that this species is not over-exploited. Unless this is done the *gangeticus* population of the river will get depleted. There is an urgent need to conduct investigations in this regard. This can perhaps best be done by identifying materials that repel this turtle so that fishermen can attach them to their nets. By this method they can avoid capture of this species.

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COCHIN SCENE

K. VIJAYAKUMARAN,
Our Cochin Representative.

As the ban period terminated on 31st August 1982, the purse seiners resumed operation on the morning of 1st September itself. The vessels landed large quantities of sardines on the second day of September. The number of seiners operating from the harbour and other private jetties increased day by day during the early and mid September, as vessels from Karnataka and Tamil Nadu joined the fleet. Many of these vessels were brought by the Cochin entrepreneurs.

An average number of 20 purse seiners utilised the mooring facilities but about hundred of them landed their catch through carrier vessels. However on 21st September around 60 vessels utilised the berthing facilities.

The purse seine catch mainly consisted of sardines, mackerels, anchovies, pomfrets. The composition varied every day. Sardine was the major item during early September. During mid September, especially on 21st, mackerels became abundant.

The daily earnings of a purse seiner depend on the catch composition. Each vessel landed about 3500 kg. of fish at a time. This quantity of fish generally fetches a price of Rs. 4000/- (for Anchovies), Rs. 3000/- (for sardines) and Rs. 8000/- (for Mackerel). The same quantity of fish on glut days were auctioned at Rs. 2500/- (for Anchovies) Rs. 1000 (for sardines) and Rs. 4000/- (for mackerel). Daily landings at the harbour were of the order of 400-500 tonnes.

EFFORT

In September gill netters showed no marked change in number. About 200 vessels landed their catches in the mornings every day. The composition of the catch showed a little change from that of August 1982. In addition to cat fishes, sharks and pomfrets, tuna became available. But seer fish remained as a rare item. A gill netter on an average landed around 200 kg. of quality fish daily.

The number of trawlers operating from the harbour diminished during this month. Around 150 trawlers landed little quantity of shrimp and other bottom varieties like flat fishes. Many of the trawlers served as carrier vessels for the purse seiners, thus landing the catch without delay soon after each haul. The seiners went about scouting while their catch brought to the harbour and auctioned by their agents.

BOAT BURNT

The 21st September 1982 will be ever remembered as a black mark in the history of purse seining in Cochin waters. While all the vessels were engaged in encircling the abundant mackerel shoals, one of them, a boat named Mahalakshmi, was burnt in the near shore waters of Cochin. The vessel was afloat idly due to some engine troubles close to the western part of Vypeen island when some country craft fishermen were stated to have set fire to the boat. The crew escaped on another

vessel. The owner of the boat Mr. Salam from Chellanum was given a sum of Rs. 50,000/- for buying another boat by the purse seine boat owners association.

TRADITIONAL RIVALRY

The rivalry between the country craft fishermen and the mechanised vessels is an age old one. Traditional fishermen are always against mechanisation and they are reluctant to accept the benefits of mechanization. They still believe that the mechanized vessels will deplete the fish stocks in near-shore waters. It is true that the shoals have to escape the purse seiner boats to go closer to the shore and get caught in the shore seiners and other nets of traditional fishermen.

It is to safeguard the interests of the traditional country craft fishermen that the state government has imposed some regulations on the mechanised fishing vessels. By this the mechanized purse seiners are not allowed to operate in the near shore waters. They can operate only beyond 22 km. However, it is not easy for anyone to check this. When a large shoal is located, the purse seiners shoot their nets and encircle it before they are caught. So the rivalry continues.

PATROLLING

The state fisheries department has come forward to tackle the problem introducing a few number of speed launches for patrolling. The effectiveness of the few patrol boats for a long coastline of about 560 km. is doubted.

Of late, the waves of clashes between mechanised and non-mechanised boat operators have

Cont. on P. 56.

BREAKTHROUGH IN DEEP SEA TECHNOCRAT-ENTERPRENEURS HAVE ROLE TO PLAY, SAYS PRASAD

39 year old N. S. H. Prasad, a diploma holder in fisheries technology and navigation from Andhra Polytechnic, Kakinada, is a successful entrepreneur in the field of deep sea fishing. He is the Managing Director of Srinivasa Sea Foods (Pvt.) Ltd. Visakhapatnam, an affable personality, somewhat on the stockier side, a shyly disarming smile is always on his face while in a conversation. Hailing from a farmer's family of Dosakayalapalli in East Godavari district of Andhra Pradesh, even from his high school days he set his sights high on achieving something big. He was, however disappointed when he had to join the A.P. State Fisheries Department as an Assistant Inspector of Fisheries in 1965, after obtaining his diploma in fisheries in 1964 and undergoing practical training in the field for 10 months. A person having the innate flair for initiative and action, he could not adjust himself to departmental style of functioning. An opening to wriggle out of the department presented itself to him when the Government of A.P. announced a scheme in 1967 to provide mechanised boats to technocrats on hire-purchase basis. Prasad resigned his position and secured the allotment of two mechanised boats from the State Government. Although he passed through several ups and downs since then, there was no looking back. In late seventies he graduated into the line of deep sea fishing with two Mexican trawlers and also set up a modern marine products processing plant. He says his proveditor, responsible for his upgradation from inshore to deep sea fishing, is the veteran industrialist, Mr. K. Rangarao, and the credit for the present position of his company goes to him. He says that two enlightened and enthusiastic senior executives in his company, Sudhir and Sagar have been substantially responsible for the successful functioning of the enterprise.

Prasad is an example to prove what small entrepreneurs can achieve. Believing that his story would be of interest to the readers, your editor interviewed him recently and the session went as follows:—

Q. Your entry into the marine fisheries field in the year 1967, resigning your job in the A.P. Fisheries Department must have been dramatic at that time.

Did you not feel that the resignation was too much of a risk?

A. I took a calculated risk. No technocrat was coming forward

to take mechanised boats. I thought that it was a challenging opportunity and I should avail of it.

Q. What were your experience in the operation of the boats? Were the terms of allotment attractive?

A. I started operations with one mechanised boat with Torpedo engine of 68 H.P., allotted to me on 22-10-67, with 50% subsidy on engine and 12½% on hull. The total cost was Rs. 67,000 interest free, repayable in five years. Later, I secured allotment of another boat with Yanmar engine in March 1978. I operated both the boats from Kakinada. At that time boat side price was Rs. 4/- per kg. for whites and tigers. There was no interest in brown, poovalan and Karikadi. I lost Rs. 60,000 during my operation at Kakinada.

Q. What made you continue in the field in spite of the set back and how did you manage?

A. I had only two alternatives, either to give up or to intensify my efforts. I was determined to make up my losses in this line only and shifted one of my boats to Visakhapatnam on 29 Nov. 1968 in peculiar circumstances. Vizag Port Trust authorities were not allowing private fishing boats to enter the harbour during those days. When my boat was near Vizag conducting fishing,

FISHING: A MAJOR

there was engine trouble and we managed to reach Vizag Port zone. We were not allowed to enter. I met Mr. Muralimohan Rao, Inspector of Fisheries, and Mr. Anjaneyulu, Assistant Inspector of Fisheries and with their help met Mr. Srinivasan, Ex-Chairman of the Port Trust, who was then the Traffic Manager. After prolonged discussions he gave me permission for berthing my boat in the S.L. Canal for a period of three months. This was later extended on a permanent basis. I thus had the distinction of operating the first mechanised boat from Vizag port. Later on others followed me.

Q. How were your mechanised boat operations from Vizag port then?

A. I started fishing operations from Vizag on 4th Dec. 1968. On the first day the catches were poor, giving me a return of Rs. 16/- only. From the second day onwards I took command of the operations. On the second day, off Rishi Hills, I got 40 kg. of tigers and good quantity of fish comprising of pomfrets, upenoids, lactarius etc. My returns were Rs. 502, the first time in my activity that crossed Rs. 500/- mark. This trend continued. However on 11 Dec. 1968 I got a bumper catch of 890 kg. of shrimp giving me a return of Rs. 5,300/- besides Rs. 1,000/- from fish. My spirits soared with this and I continued



MR. N.S.H. PRASAD

with redoubled vigour. Later I brought my second boat also from Kakinada to Vizag. My operations eventually became established.

Q. What were the areas covered for fishing during those days? What was the catch composition?

A. My operations were restricted to areas off Visakhapatnam. I used to get mostly tiger shrimp with occasional white. Browns were a rarity. The catches of Browns increased only from 1970.

Q. How were you marketing the catches?

A. I used to sell tiger and white shrimp to middle men at Rs. 6/- per kg. These people used to send the material to processors in Madras/Cochin. I wanted to avoid the middle-men to improve

my earnings. Accordingly, I started sending my shrimp catches to processors at Madras directly. This enabled me to get another Rs. 2/- per kg.

Q. What made you enter the field for trawling with larger vessels and the establishment of a marine products processing plant.

A. I had all along been on the look out for upgrading my activities. In 1971, Union Carbide started operations with two larger trawlers imported from U.S.A. The landings from these trawlers were good. Seeing this, I wanted to establish an enterprise joining hands with those close to me, aimed at integrated and sustained operations involving fishing with larger vessels and processing the products at shore for export. I made a trip to

INTERVIEWS

Delhi in 1973 and met concerned officials in the Ministry of Agriculture to ascertain the possibilities of importing trawlers. I was then told that a notification for import of trawlers would soon be issued and I could then apply.

The notification came out in June 1973 and I opted for import of Italian trawlers. As you know, Government coordinated the import programme under the scheme and selected three sources of import i.e. Mexico, Italy and Poland. Italy and Poland had later withdrawn from the field. I re-opted for the import of Mexico trawlers along with the other applicants. During those days, under the able leadership of Mr. S. P. Balasubramanyam, Joint Secretary of Fisheries well assisted by yourself as Deputy Commissioner (Fisheries) effective coordination, among us the applicants, and between us and the government and the shipyards was achieved. There was never any gap in the

activity and this kept up our interest with some progress of the other viable from time to time. Things moved in a positive manner and ultimately the import of trawlers became a reality.

Q. Did you not face any problems in the accomplishment of the import of trawlers?

A. I was to take delivery of my two trawlers in Mexico on 3 Feb. 1978. The transportation was entrusted to the Shipping Corporation of India. At the time of taking delivery, in Mexico, the Shipping Corporation of India wanted us to pay another Rs. 8 lakhs, failing which they would not transport the vessels from Houston. The vessels were expected to reach Houston from the Mexican port of Coatzacoilcas on 7 Feb. 1978 on their own bottom, from where they were expected to be taken as deck cargo by the SCI. On receiving this information I rushed back to New York and held discussions with SCI

officials there. As they were adamant I contacted Mr. Jumbo Shipping Company in New York, who agreed to bring the vessels as deck cargo from Coatzacoilcas to Visakhapatnam. They asked me to meet their representative in New Delhi for further particulars. Immediately I rushed back to New Delhi and met Cdr. Sinha of Eastern Charters (P.) Ltd., who were the agents of the Jumbo Shipping. I obtained a quotation from them well within my budget. They gave the ETA of the ship as 7th April 1978 at Coatzacoilcas. Then I visited from the state government for getting release of the loan from SDFC and handed over the same to SDFC. They then asked me to approach their Law Member stationed at Bombay for clearance of loan. On 2nd April 1978, I went to Bombay and met the SDFC's Law Member. He wanted me to bring a combined guarantee from the state government for the loan earlier given



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for down payment towards the cost of our trawlers and the present loan for transportation. I was to leave on 4th April 1978 for Mexico, to arrange for the transportation. There was hardly any time left for me to again approach the state government to give a combined guarantee. Even though I explained my difficulties and the tight time schedule to the Law Member, he refused to clear the guarantee. I then told him that he should place himself in my position and visualise my state of mind and the effect of his attitude on my future. If he wanted to ruin my career, he was free to stick to his stand. Seeing my pathetic condition, he finally relented and cleared the guarantee. With this I rushed on the same day evening to Delhi and handed over the guarantee to the Secretary SDFC, on 3rd April morning. The secretary understood the urgency of the matter and released the funds the same evening, although lot of work had to be done. I met the Manager (Foreign Exchange), State Bank of India, Delhi, handed over the draft covering transportation costs to him with the request that the amount in foreign exchange may be sent to the bankers of Jumbo Shipping, on the 4th morning. He had kindly agreed to do this and I left on the same night for New York enroute to Mexico. I was worried whether the remittance would be made on the next day or not but I was relieved to know in New York that the remittance was received.

I also had lot of problems at the time of taking over the trawlers. The management of the shipyard was unwilling to release the trawlers till a certain payment, disputed by me but found in order by them was also made. By God's grace I could ultimately convince

them and arrange for the transportation of the trawlers.

Q. Can you tell me a few salient aspects of your company?

A. Our Company, M/s Srinivasa Sea Foods (Pvt.) Limited, Visakhapatnam, was registered on 22 Oct. 1975. Our trawlers reached Visakhapatnam in May 1978. Necessary modifications and various clearances took some time and the trawlers became operational on 14 July 1978. Our marine products processing plant, with 2 frozen storages of 75 tonnes capacity each, 2 plate freezers of 10 tonnes capacity, ice plant of 12 tonnes capacity and a chilled fish storage of 60 tonnes capacity went into production on 16 Oct. 1978. We exported, from Oct. 1979 to September 1980, marine products worth Rs. 1.23 crores, and from Oct. 1980 to September 1981 products worth Rs. 2.27 crores. All our exporters know that our plant is well equipped. We have a quality control laboratory. Our processing tables are made with stainless steel and perhaps ours is the only plant in India with this improvement. The processing hall is fully airconditioned.

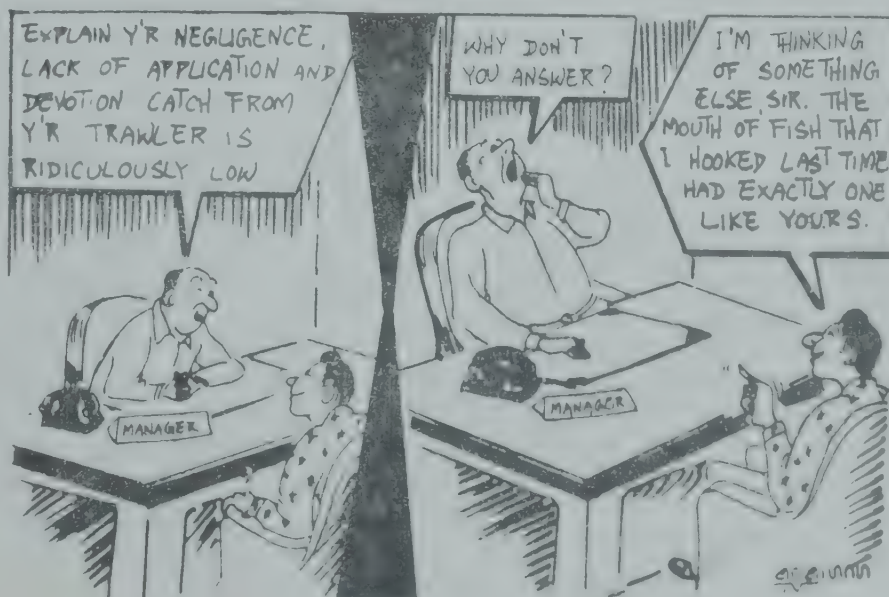
Q. There is a strong view expressed in certain quarters that only larger houses can achieve a

major breakthrough in deep sea fishing. Do you subscribe to this view?

A. I do not agree with this view at all. Technocrat entrepreneurs have played and can play a major role in achieving substantial developments in deep sea fishing. With loan assistance from S.D.F.C. to the extent of 90% to 95% of the cost of the deep sea fishing vessels, it is well within means of technocrat entrepreneurs, possibly with some financial help from other interested parties to play a major role in the development of deep sea fishing. I consider that it is a motivated propaganda that only larger houses can deliver the goods.

Q. To what do you attribute your success?

A. I do not think that we have as yet reached a stage when we can call ourselves successful in full measure. However the limited success of our enterprise is largely attributable to the Veteran Industrialist Mr. K. Ranga Rao, but for whose enlightened guidance, direction, encouragement, we would not have reached the present stage. There are also two enthusiastic and capable senior executives in our company M/s K. Sudhir and L. P. Sagar who have contributed substantially for the successful functioning of our enterprise.





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Representation Sent by A. P. Mechanised Boat Operators to K.C.S. Acharya, Additional Secretary, Union Department of Agriculture, New Delhi

Our main problem concerns the uneconomic operational aspects of mechanised fishing boats. Several representations have been made both to the Central and the State Government authorities to provide redressal, but without result. The following are for your kind consideration and favourable response.

1) HIGH COST OF DIESEL OIL:

While the catches from mechanised fishing boats have been gradually coming down, the operational costs have been growing up. While those operating trawlers of larger size are allowed 50% duty free diesel oil, unrealistically, in spite of the professed policy to lend support to weaker sections of society the mechanised boat operators have not been getting any subsidy on diesel oil. The issue was considered by the government several times but on grounds of administration difficulties, the concession was not given. It is surprising that the mighty Government of India is unable to solve a simple problem connected with assistance for small scale workers. We would earnestly request you, Sir, to help us by securing for us a subsidy on diesel at least at par with larger operators. As 60% of our operational costs is tied up with cost of fuel, any help that you can render to us will be remembered for ever.

2) LOANS FROM BANKS AND INTEREST PAYMENT

The bankers treat fishing industry at par with land-based industries. They fail to recognise that fishery fluctuates and a uniform level of returns cannot always be expected. On account of this major deficiency in their thinking, any default on the part of the operators, owing to fluctuation in catches, is taken very seriously and heavy penal interest is levied. It should not be difficult for the banks to ascertain the position from the state fisheries departments and waive penal interest if the submissions of the operators are found to be true. Further, in all such cases, it will be just on the part of the banks to agree for re-scheduling of the instalments, if the payments were delayed for genuine reasons.

Considering the fact that the economics of operations are very unfavourable, we request you, Sir, to prevail upon the Union Department of Banking to advise the banks to charge interest on funds made available for acquisition of mechanised fishing boats at par with SDFC interest rates. If necessary, government may have to consider subsidising the difference.

3) DIVERSIFICATION OF FISHING

We know that the government are very keen that the fishing effort should be diversified. We also know that there is no alternative to diversification from shrimp fishing, if we are to survive. However, we only hear about the government's intention to diversify, but nothing beyond. The preaching has to be translated into action. The mechanised boat operators at Visakhapatnam have been urging for quite some time that pair-boat trawling, introduced by the Bay of Bengal Programme at certain places in Tamil Nadu should also be demonstrated at Visakhapatnam for adoption. So far no action has been taken in this regard. We request, you, Sir, to use your influence and prevail upon the Bay of Bengal Programme to demonstrate the technique in a big way at Visakhapatnam. If the demonstration is impressive, we assure you that a large number of mechanised boats will switch over to pair boat trawling.

4) FISH MARKETING

While government has difficulty in providing diesel oil at a differential rate for fishing boats, we do not know the real problem the government is facing in providing an effective organisation for marketing of our catches at remunerative prices. If an effective organisation is available, with transportation and storage facilities over a wide area, the increased earnings thereby will atleast off-set higher cost involved in the purchase of diesel oil. All smaller varieties of fish are thrown back into sea, only for the reason that there is no market. Is this not something urgent that the matter should receive immediate attention of the government? Instead of frittering away heavy funds on other projects which may or may not yield satisfactory

results, we submit, Sir, it will be wiser on the part of the government to concentrate on the organisation of an effective internal marketing system. This would mitigate the hardships faced by us on account of lower returns. With part of the catches as shrimp and additional revenue from fish catches, we will be able to sail through.

5) PORT BERTH HIRE CHARGES

At present Visakhapatnam Port Trust is levying a charge of Rs. 230/- per month as berth hire charges per mechanised boat. This is the highest for any fishing boat in India. The operators are unable to pay this heavy charge. In spite of repeated representations to the port authorities to reduce berth hire charges to Rs. 100/- per month per boat, there was no positive reaction. We request your kind intervention in the matter. We may also be permitted to further submit that the berth hire charges are levied even when the vessels are under repair. We request that upto 15 days of repairs at port, a concessional rate may be charged.

6) LEVY ON DIESEL OIL

The Visakhapatnam Port Trust imposed a levy of 4 paise per litre on diesel oil consumed by the various fishing vessels. This is an unjust levy. We request you, Sir, to recommend to the Port Trust, to give up this levy on diesel oil at least for the small mechanised fishing boats, as this has become an additional burden on us.

7) ROLE OF GOVERNMENT FISHERY UNITS

It is understood that MPEDA supplies ice boxes at concessional rates to mechanised boat operators. This concession has not been extended to Visakhapatnam so far.

The reason for this is not known. As you would appreciate, sir, the MPEDA authorities have never come down to Visakhapatnam to apprise us of the benefits and make arrangements for the supply of these ice boxes. They cannot expect us to meet them often for the benefits, particularly as we are always busy with fishing operations. We would be grateful to you, sir, if you could kindly look into this matter.

We have also to submit that the impact of the work that is being done by the institutes such as Central Institute of Fisheries Technology, Central Marine Fisheries Research Institute and Marine Products Export Development Authority is not at all felt by the mechanised boat operators at Visakhapatnam. It is of utmost importance that representatives of these organisations apprise us of their activities and the benefits that we can get out of their activities and keep themselves in close touch with us. We do hope you will kindly look into this matter.

8) CIFNET

After a long struggle on our part, a unit of the Central Institute of Fisheries Nautical Engineering and Training has been located by the government at Visakhapatnam. Although it was started about a year back, so far the unit has been functioning with skeleton staff. No facilities are provided for imparting practical training to the candidates. The place and its activities at present wear a funeral appearance. We would request you, sir, to advise the Director of the Institute to put some life into the unit and see that the purpose for which it is established is fulfilled.

9) STATE BOUNDARIES

As you know, sir, fishes know no boundaries. They move freely from one area to the other. The

fisheries shift periodically according to seasons, from place to place. Fishermen therefore have to move with the availability of fish.

Since 1975 mechanised boats from Andhra Pradesh have been seasonally migrating to centres along Orissa coast for fishing. In 1979 at Paradeep, fishermen from Andhra coast were severely attacked, and attempts were made to set their boats on fire by Orissa mechanised boats operators. Since then the mechanised boats from Andhra area have been going seasonally to another port in Orissa by name Astarang, 50 miles south of Paradeep. There are no facilities there, but the boat operators have been somehow managing. Here also the mechanised boat operators of Orissa attacked them in 1981.

This year, the Orissa mechanised boats operators have sent an advance warning letter to the Andhra Mechanised Boat operators. In this warning, it is stated that if they come to Orissa coast they will be killed.

Under the Constitution of India no barriers on commercial activities can be imposed between the states unless the matter has the prior approval of the President of India. There is no Act passed by the Government of Orissa with the prior permission from the President of India to prevent the fishermen from other parts from fishing in Orissa waters. While the Orissa fishermen have taken this attitude, the Visakhapatnam Port has been kept open to fishing operators from all over the country. The Govt. of India would not certainly like the Andhra fishermen to retaliate. We would earnestly request you, sir, to take up the matter with Orissa government and warn the Orissa Mechanised Boat Operators not to create any hurdles, or impose any harm on Andhra fishermen operating

in Orissa waters. We will also require protection. We would earnestly request you to do justice in this respect.

10) SLIPWAY AND DRY DOCKING FACILITIES

The Visakhapatnam fishing harbour has become the haven for big operators. All the facilities provided by the port are for larger operators only. Although 250 mechanised boats are operating from this port, with a large number of people living on income therefrom, no facilities are provided for repairs of our boats. The charges for slipway utilisation for small boats are prohibitive. We would therefore request you, sir, to prevail upon the port

trust to provide us with a separate slipway and cradles for use of small mechanised fishing boats at reasonable rates.

11) MONITORING OF CATCHES

At present there is no machinery to monitor the landings at the Visakhapatnam fishing harbour. The auction hall, which is meant for auctioning of fish under the supervision of the fishing harbour authorities, is now being used mostly for mending of nets. Several malpractices on the part of the operators have come into being for the reason that the catches are not recorded at the landing stage and before they are sold. We submit, sir, that this situation be remedied and a

system under which all catches have to pass through the fishing harbour authorities may be introduced. Once there is a record of the catches, and the amounts for which they are sold, it will provide valuable information not only to the government, but also to the operators.

We would therefore request, you, sir, to take necessary steps in this matter.

Yours faithfully,
(Capt. N. Venkateswarlu)
for and on behalf of

THE MECHANISED FISHING
BOATS OPERATORS
Visakhapatnam

15-9-1982

MARINE Vs. INLAND FISHERIES IN INDIA

Dr. B. S. SAXENA

In order to determine realistic priorities for a planned development of any industry and that too in a developing country like India, where capital resources are scarce, the importance of the study of comparative investments and returns can hardly be overemphasised. So far as the Indian fishing industry is concerned, it may be interesting to note that the importance of their study was amply understood as early as 1965 when it was realised that with an investment of Rs. 48 crores, an additional marine fish production of 4.8 lakh tonnes could be achieved as

against an investment of Rs. 25 crores, with which an additional inland fish production of only 62,500 tonnes could be accomplished. In other words, production in marine fisheries would be much more in quantity and more economical in relation to investment.

It was, therefore, felt that the comparative, economic gains on the basis of investment and return ratio in implementing fisheries schemes should be worked out. Such schemes which would give increased protein at a reasonable cost were to be preferred to schemes involving large capital and lower protein availability. It was later realised that the investment on inland fisheries was more due to high expenditure on reclamation of land. Thereupon, it was desired that Indian Council of Agricultural Research should work out the economics of the selected fishery programmes and on the basis of such assessment, the priorities could be assigned to the various schemes. However, no

such studies appear to have been under-taken by the I.C.A.R. even after a lapse of more than one and a half decades. It may be pertinent to point out in this connection that in a country where 30.70% culturable water areas out of India's total land culturable area of 24,79,273 acres were lying fallow at that time, there was hardly any justification to give priority for expenditure on reclamation of inland fishery waters.

From the expenditure on Central and Centrally sponsored schemes during the IVth and Vth Five Year Plans it may be observed that Government of India have spent 91.8% and 81.88% of total expenditure on fisheries during the Fourth and Fifth Five Year Plans respectively on marine fisheries. The total expenditure on inland fisheries works out only to 2.4% and 9.94% respectively of the total expenditure during the corresponding periods. While segregating expenditure on marine and inland fisheries, expenditures on Centre's assistance

to State Fisheries Corporation, Refrigerated Rail vans, strengthening of Organisation of Fisheries Extension work have been considered common for both inland and marine fisheries and thus ignored.

The Five-yearly average (1964-68) of marine fish production has increased from 869.24 thousand tonnes to 1059.0 thousand tonnes in the Fourth Plan and to 1453.38 thousand tonnes during the Fifth Plan resulting in growth rate of 22.99% and 35.96% respectively, whereas the production in inland field, in spite of poor corresponding investments, has increased from 520.6 thousand tonnes to 691.6 thousand tonnes and to 809.36 thousand tonnes in the Fourth and Fifth Plans respectively, resulting in growth-rates of 32.88% and 17.03% during the corresponding plans.

In spite of the fact that the development of marine fisheries is capital-intensive and inland fisheries labour-intensive, the disproportionate expenditure of 91.86% and 81.88% on the development of marine fisheries and of only 2.44% and 9.94% on inland fisheries during the Fourth and Fifth Five Year Plans respectively can hardly be justified specially in view of the comparative returns received in terms of fish production from the two sectors of Indian fishing industry. In terms of per tonne of additional production-investment ratio, the investment works out to Rs. 61.42 and Rs. 93.73 per/kg. of marine fish and only Rs. 1.95 and 36.31 per/kg. of inland fish production during the fourth and fifth plans respectively. Not only that the ratio is very high in marine as compared to inland sector but also that the ratio is very much higher in both the sectors during the fifth than the fourth

plan. This deserves to be critically examined to identify the reasons thereof and to suggest remedial measures for the same.

Inland Fisheries consist of two clear systems—viz. culture and capture. It is unfortunate that, in spite of planned fisheries development of 30 years, the concepts of these two terms have not so far been spelt out clearly and precisely. The importance of such an exercise is very important because man plays a dominant role in the former (Culture Fisheries) whereas nature does this in the latter (i.e. capture fisheries). Thus the developmental efforts are likely to be rewarded more in the former than in the latter. Therefore, before taking up inland fisheries development, it is essential to define not only the concepts of culture and capture fisheries but also to assess their respective productions as well as their growth-rates. However, in spite of our investment being much more on culture fisheries than on capture fisheries, the later still continues to contribute a much greater share in the inland fish production than the former. Hence realistic priorities will have to be determined within inland fisheries as well in regard to activities such as pond culture, reservoir and riverine fisheries.

Therefore, the need to study the comparative investments and returns not only between marine and inland fisheries but also for each fishery scheme and sector is evident in order to utilise our scarce resources properly and to achieve the goals and objectives of our National Fishery Policy which also is yet to be spelt out.

PRIORITIES

These studies will help us in drawing realistic priorities for a

balanced and quicker development of Indian fishing industry with a low investment as possible. One reason for not doing this so far appears to be that, in spite of scarce resources in a poor country like India, Indian fisheries planners have been getting as much funds as desired in spite of the fact that they have not been able to spend the same fully, much less to utilise them. It is observed that we have been able to spend only 54.19%, 73.99%, 82.67% 65.45%, 89.25% during the First, Second, Third, Fourth and Fifth Five Year Plans respectively and only 49.28% and 55.98% during the 1978-79 and 1979-80 Fisheries Annual Plans of the respective outlays. Therefore, the imperative need is to make rational use of our resources for developing the industry based on marginal costs and returns.

EVALUATION CELL

An evaluation cell should be set up both at the centre and in each state to evaluate the physical as well as financial performance of each scheme annually and also five-yearly in order to identify our difficulties and pitfalls so as to formulate timely remedial measures in order to accelerate the growth rates.

NATIONAL FISHERY POLICY

It is high time that, atleast after an experience of 30 years of planned development, our national fishery policy should be clearly and precisely spelt-out. Till recently mechanization of medium crafts appeared to be our main hope for fisheries development. In view of the rising costs of inputs, specially of the fuel, it is now keenly felt that some kind of intermediate technology is urgently required. It may consist of towing non-mechanised and mechanised

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4DAY CHRONICLE

VISAKHAPATNAM

The operational results of mechanised fishing boats improved considerably. The size of shrimp landed by the boats being better than the trawler catches, the operators received better prices from processors. As the fishing was good, about 300 boats from Kakinada shifted to Visakhapatnam. The entire fishing activity was confined to Vizag area. After several years, it is stated, the fishing in the neighbourhood of Vizag had revived on this scale. For about one week the mechanised boats conducted both day and night fishing as the catches were very encouraging. During these days the entire sea adjacent to Vizag was full of these boats, looking like a town afloat with lights. No boat brought less than 50 kg. daily. In some cases the catches were over 200 kg. per day. There was a good component of whites and tigers in the catches.

Trawlers catches were never so good as in October. The catches of shrimp of around 6 tons per voyage became a trite matter. The two trawlers of Britannia landed in one voyage 11 tons and 9 tons respectively. These were the highest landings among trawlers in October. In another voyage these vessels brought 6 tons each. There was a sizable component of whites and tigers in the catches. One trawler of Srinivasa Sea Foods landed 9½ tons of shrimp in a voyage, of which nearly 5 tons were whites. Another landed 8 tonnes of shrimp with a sizable white component. These were record landings.

The two trawlers of Yamuna Sea Foods landed 6.5 tonnes of shrimp each. One vessel of Marshall Sea Foods landed a shrimp catch of 5.5 tonnes. Two of the trawlers of Suraj Fisheries and one of the trawlers of Phoenix India brought 6.5 tons of shrimp each. One of the trawlers of Gujarat Agro-Marine Products landed over 7.5 tons of shrimp.

"M.T. TATA SIDDHI", of Tata Oil Mills landed 5.6 tons of shrimp. One of their Thal trawlers, a stern trawler brought 5 tons of shrimp, besides lot of fish.

One mechanised boat, VPT 333, sank off Rishi hills while returning from fishing, on 15 October afternoon. It is stated that this was on account of heavy weather and cyclonic winds. One deck-hand died and the rest were rescued while they were swimming, by other mechanised boat operators.

There is a talk that M/s Andhra Sea Foods may soon commence operation of their two Mexican trawlers, 'AVE MARIA-I' and 'AVE MARIA-II'. These trawlers have been remaining idle at Vizag fishing harbour for the past few years. They were under lease to M/s I.T.C. Limited from 1972-73. After operating for a few years I.T.C. Ltd. terminated the lease agreement which led to a dispute and the matter went to court. It is stated that M/s Andhra Sea Foods had been winning in court in successive appeals and the matter is now in the Supreme Court. Meanwhile, for the past few years they were lying idle. It is now

stated that M/s Andhra Sea Foods are inclined to revive the operations with their trawlers. It is not known whether there had been any settlement with I.T.C. Ltd. There is some talk that, in some way, the closure of fishing operations by I.T.C. Ltd. is connected with the lease affairs of AVE MARIAS.

I.T.C.'s two mexican trawlers are now for sale, but there are no buyers. It is to be seen whether I.T.C. would resume operations, if the problem created by AVE MARIAS is resolved. By closing down their operation I.T.C. missed two successive good shrimp seasons.

The operational affairs of Marshall Sea Foods are in a ferment. All the four vessels of this group came back without completing their voyages on an information received from shore crew that the management were evasive in regard to the fulfilment of certain promises made by them concerning salaries, incentives, mess allowances and other facilities. An agreement appears to have now been reached concerning incentives which would be paid on a certain scale as and when the return exceeds Rs. 2.5 lakh per voyage. It is also learnt that the crew working with Marshall Sea Foods are being gradually influenced by Tata Karmachari Union. At the end of October all four Marshall vessels were at port. There were also developments in the shore management aspect of the Marshall group also. Mr. Rajesh Tiwari, Fleet Manager had resigned. The services of a Shore Assistant were dispensed with by the company.

Tata Oil Mills had terminated the services of 19 crew members as they were belligerent, disobeying orders, and highly non-cooperative.

All these crew members were either Keralites or Tamils. On account of the adamancy of the crew, the company recommenced its operations by recruiting local persons. It is to be mentioned here that Tata Fisheries Karmachari Union had been agitating for the acceptance of certain of their demands for the last several months. Several negotiations took place and some demands were conceded by the management. In spite of this, a few of the members had been prevailing upon the others to continue the agitation. It is for the first that Tata Oil Mills had recruited local crew.

While there was a drop in raw material prices in the early part of the month reaching a level of Rs. 115 - per kg. for tigers, Rs. 89 - per kg. for whites and Rs. 59/- per kg. for browns, towards the end of October, the prices picked up to the level of Rs. 120 to 125/- per kg. for tigers, Rs. 102/- per kg. for whites and Rs. 62/- per kg. for browns, in respect of trawler catches. In respect of white and tiger catches from mechanised boats the prices was Rs. 98/- per kg. and for browns Rs. 58/- per kg. in the early part of the month which improved to Rs. 102 - for whites and tigers and Rs. 60/- for browns towards the end of the month.

KAKINADA

After the recent cyclone there had been considerable improvement in the shrimp landings off Kakinada. The catches were over 5 tons a day. Tigers and whites were bringing Rs. 100 to 110/- per kg. and browns Rs. 50 - per kg. Poovalan of 61/70 count was fetching Rs. 45 - per kg. and poovalan of 300/500 count Rs. 71/- per kg.

Scampi from Kolleru lake was being purchased by some parties at Rs. 70 - per kg. and exported to Madras. It is stated that this export to Madras was being done regularly during the season from Kolleru lake area.

While several Kakinada boats left Visakhapatnam, some boats moved to Machilipatnam and

Krishnapatnam where also fishing for shrimp was stated to be good. There is a talk that a few boats from Kakinada may go to Astarang in Orissa.

PARADEEP

Shrimp fishing by mechanised boats improved considerably from Paradeep. The catches were mostly browns.

MARKET TRENDS

The declining trend in export prices of shrimp to Japan is now reversing itself. An upward trend is noticed during October. Japanese yen has also become somewhat stronger. Prices have improved in the case of HL White (larger counts), browns and tigers in the Japanese market.

There was lack of enthusiasm on the part of Japanese importers until September. They have now started showing active interest. Japanese buyers were busy throughout the month of October settling contracts with Indian exporters.

The Chinese trade fair where Japanese buyers enter into

contracts commenced on 15 October. It is believed that the stocks to be offered would be on the lower side and the price are also expected to be on the high side. This would certainly be an advantage to the Indian exporters to get higher prices. The low inventories in Japan would also help in this respect. The Indonesian and Thai shrimps are being exported to Japan at US \$ 15.80/kg level. Compared to this the price offered to the Indian exporters were considerably on the lower side. The following were the export prices towards the end of October 1982.

JAPAN

Type	Count Range	Price Range per kg/US \$
HL White (Flower)	8 11-71 '90	15.00 - 4.00
HL Tiger (Calcutta)	8 11-71 '90	14.70 - 4.50
HL Brown	16 20-71 '90	12.00 - 4.00
HL Brown (Vizag)	16 20-71 '90	13.50 - 4.10
HL Brown (Western Europe)	31 35-71 '90	8.20 - 4.10
PUD	80 120-300 500	5.20 - 2.20
	Broken	1.50
PUD (Mangalore)	20 40-300 500	6.25 - 2.45
	Broken	1.55

U.S.A.

Type	Count Range	Price Range per lb/US \$
PD Block	130/200-300/500 Broken	2.10 - 1.50 1.00 - 0.90

Pomfrets exported to gulf countries commanded a price of U.S. \$ 2.30 to 2.50 per kg. Frozen mackerel and sardines exported to Kuwait fetched a price of U.S. \$ 1.20 to 1.00 per kg. respectively.

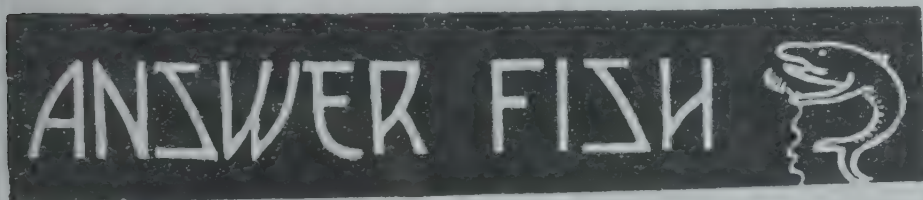
Shrimp catches along the upper east coast improved substantially. At Visakhapatnam on 18 October 1982 a consignment of 8151 cartons of HL white, tiger and flower, 642 cartons of PD of

white, tiger and flower, 6319 cartons of HL brown and 1374 cartons of PUD brown were exported. All these constitute an export of 329.720 tonnes. K.K. Group (East Coast Marine Products (P) Ltd.) is the largest exporter (4449 cartons). Devi Marines was the next highest exporter (2392 cartons). The next highest exporter was Nava Bharat Ferro Alloys Corporation. (1855 cartons).

the scheme, the government did not insist on any guarantees. Later, a condition which provided for the furnishing of a guarantee of Rs. 2 lakhs per vessel was introduced. In February, 1982 this condition was relaxed to provide for the furnishing of a guarantee for Rs. 2 lakhs for five units. On this basis, government cleared several cases in May 1982. It is also understood that government released the excess guarantee amount collected from a company which gave guarantees at Rs. 2 lakhs per vessel under old conditions. However, in a case cleared in September 1982, the old condition was stated to have been restored.

The policy of the government is to encourage small companies to come up, while also encouraging larger companies. It will be difficult for small companies to secure heavy guarantees. It is hoped that government would restore the condition as introduced in February 1982, particularly as no company has contravened any of the conditions thereafter.

Further, the Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act, 1981 clearly provides under Chapter IV para-12 (b) for the imposition of a heavy fine for contravening any conditions of the permit issued. This provides an adequate safeguard. In case the charterer fails to buy a vessel during the charter period as stipulated in the conditions, he will have to face the fine. This will be a public shame and is a greater deterrent than a safeguard through heavy bank guarantees. It will also be unfair to impose two constraints, heavy bank guarantee on one hand and a statutory provision for fine on the other. Once the provision of heavy bank



Q. We have witnessed the failure of the schemes for the introduction of deep sea fishing vessels through imports/indigenous construction. It now appears that the scheme for introducing vessels under charters also is not making headway. What are the reasons?

G. K. Naidu
Madras

A. The progress under the schemes for the introduction of fishing vessels through charters is not bad. Government permitted the introduction of around 60 units of which 7 units of bull trawlers and 6 stern trawlers are now operating.

There are a hurdles in the way of faster progress. One hurdle

is that there are very few countries that are willing to give vessels on charter. Further, as government seems to be interested in permitting vessels suited for diversified fishing only, the choice has become further restricted.

Countries such as South Korea and Japan, although they can spare vessels on charters are disinclined to give offers to Indian parties being under the wrong impression that permissions from our government will be long delayed.

Another hurdle is the heavy amounts for which bank guarantees have to be given to the government by the chartering parties with reference to the number of vessels to be chartered. In the early phase of implementation of

guarantees is removed, the introduction of fishing vessels through charters will gain momentum. It is also not clear, whether the imposition of financial guarantee which can be invoked by the government is legally admissible, since the Act specifically provides for a fine not exceeding Rs. 50,000

4DIZ

1. The Territorial waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act was enacted on
 - a) 25th September 1976,
 - b) 25th August 1976,
 - c) 25th August 1975.
2. The limit of the territorial waters of India
 - a) cannot be altered, b) can be altered by an official notification, c) can be altered by an official notification after approval by both Houses of Parliament.
3. The limit of the Contiguous Zone of India is
 - a) 24 miles from the outer limits of territorial waters,
 - b) 12 miles from the outer limits of territorial waters,
 - c) 24 miles from the nearest point of the appropriate base-line from which territorial waters are determined.
4. The Exclusive Economic Zone of India extends to
 - a) 200 miles from the outer limits of our territorial waters,
 - b) 200 miles from the base-line from which territorial waters are determined, c) 200 miles from the outer limits of Contiguous Zone.
5. In the exclusive economic zone, for the purpose of exploration, exploitation, conservation and management of natural resources, the Union of India has
 - a) exclusive rights, b) limited rights, c) sovereign rights.
6. In the exclusive economic zone, for the purpose of authorisation, regulation and control of scientific research, the Union of India has
 - a) limited rights, b) sovereign rights, c) exclusive rights.
7. The Maritime Zones of India (Regulation of fishing by foreign vessels), Act, 1981 was enacted on
 - a) 28th Oct. 1981, b) 28th Sept. 1981, c) 25th Sept. 1981.
8. Foreign fishing vessels can conduct fishing in Indian waters
 - a) freely, b) under license issued by the government of India, c) only when it is established that the foreign

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country concerned has historic rights.

9. Foreign fishing vessels can be operated by Indian enterprises with a permit from the Central Government by
- only companies established under Indian Companies Act,
 - by Individuals and Companies,
 - Individuals, Companies and Co-operatives.

10. A foreign fishing vessel entering Indian waters without valid license, shall
- Keep her fishing gear stowed in the prescribed manner,
 - surrender fishing gear to authorised Indian authorities,
 - stay at port till released.

11. A foreign fishing vessel while in Indian waters
- is prohibited from conducting experimental fishing
 - allowed to conduct experimental fishing with permission from Central Government subject to certain conditions,
 - allowed only as part of joint venture.

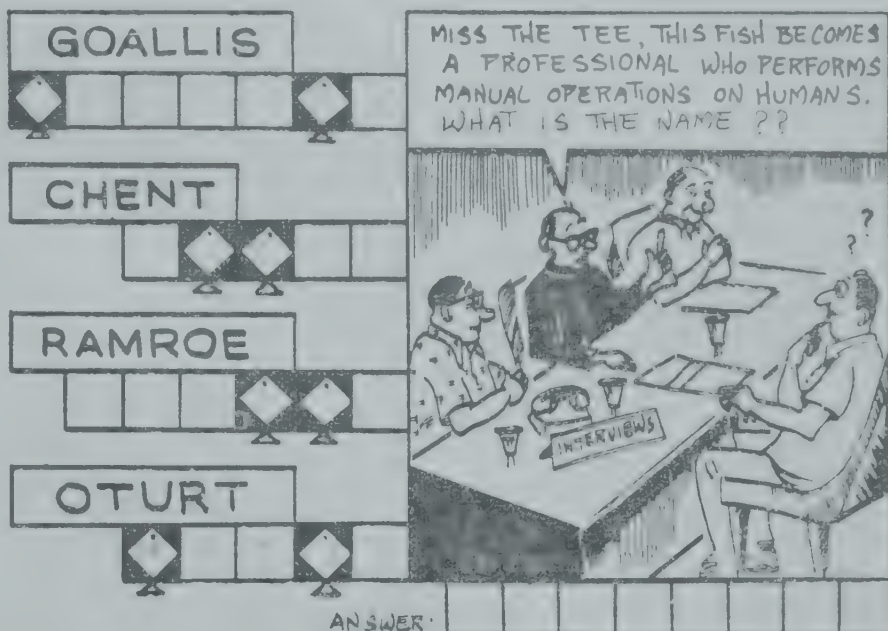
12. Power of search and seizure of unauthorised foreign fishing vessels is vested in
- Any officer of the Coast-guard,
 - Officers of the Coast-guard and Navy,
 - Officers of the Coast-guard, navy, and exploratory fisheries project.

13. Offences under Maritime Zones of India (Regulation of fishing by foreign vessels) Act committed in the territorial waters of India are punishable with
- imprisonment for a term not exceeding three years
 - fine not exceeding rupees fifteen lakhs,
 - as at (a) or (b) above or with both (a) and (b) above.

FISHERMEN'S JUMBLE

These words are as unsorted as a fish haul. Restore them to the correct order, with each letter to a square. After this, arrive at

the answer by adjusting the letters in the 'fishes', deriving clue from the sketch alongside. Answer on p. 56



14. Offences under Maritime Zones of India (Regulation of fishing by foreign vessels) Act committed in the exclusive economic zone of India are punishable with
- imprisonment for a term not exceeding one year,
 - fine not exceeding rupees fifteen lakhs,
 - fine not exceeding rupees ten lakhs.

15. Where any foreign vessel is found in any maritime zone of India without the fishing gear not being stowed, the owner or master of such vessel shall be punishable with
- fine not exceeding rupees five lakhs,
 - fine not exceeding rupees ten lakhs,
 - imprisonment for a period not exceeding one year.

Answer on p. 56.



Here is an estimation of what Stars say about fortunes of fishery industrialists, managers and operators for the month of December 1982.

ARIES (Sept. 15 to Oct. 14)

A new and more profitable

assignment may come up in your way. 12 December is likely to bring financial luck. There will be meetings with old friends or new friendships will be formed. There may be certain tensions, but you will get over them. End of the

month you will see success in your professional activities. Plans for expansion of your activities may also take shape. Good fishing can be expected from 12-18.

TAURUS (Oct. 15 to Nov. 14):

You will face serious delays in matters relating to your work, for no fault of yours. As the month advances the conditions will improve. In the early part of the month you may be tempted to take certain financial risks in regard to investments. It is not advisable to take these risks at present. By virtue of some creditable work done by you, there will be recognition in certain quarters. However, there can also be some antagonism exhibited by certain persons, but this will wear off soon. You are likely to increase your earnings in the second week. Be careful about financial decisions in the third week. Outlook in regard to dealings with other partners will brighten towards the end of the month. An associate of yours can be very helpful in your personal matters. There will be people who will try to seek your advice. Good fishing can be expected around 13 and 20.

GEMINI (Nov. 15 to Dec. 14):

There is a likelihood of differences arising in relation to your colleagues. Guard against this. Financial position may become difficult. End of 2nd week is favourable for furthering your projects. The relationship with friends will strengthen and efforts at collaboration will succeed. Around 22 Dec. financial incentives can be expected. Confusions in partnership deals may arise during the end of the month and you have to be careful about them. Good fishing can be expected around 10 and 24.

CANCER (Dec. 15 to Jan. 14):

The month is likely to start with misunderstandings and complications. There will be several hurdles in the achievement of your objectives.

in your professional field. An opportunity for improving your career may however present itself in the early part of the month. Avoid confrontation with any of your close associates. Financial opportunities will improve in the second week when new opportunities for partnership also may develop. Avoid any financial decisions on 11 Dec. In the second fortnight there can be new job opportunities. 23 Dec. may prove to be a difficult day, but will lead to favourable situations on the following days. Try not to dominate others. This will help you in several ways. Good fishing can be expected around 15 and 28.

LEO (Jan. 15 to Feb. 14):

There will be persons who would seek your guidance and favours. Deal with them well, as this is likely to improve your position. Avoid resentment on your job scene. New trends may take shape in the middle of the month. There can be news of a meeting that will lead to the realisation of your objectives. Need may arise for the revision of your future plans. Keep your plans flexible. You can expect good fishing from 15-21 of this month.

VIRGO (Feb. 15 to Mar. 14):

You will concentrate more on social aspects. Position concerning money matters will improve. It is possible that you will receive considerable attention in the second week owing to some outstanding performance of yours. Progress in your work may get slowed down. You will face considerable disappointment during the course of the month, but this need not discourage you. Things are likely to improve fast in the ensuing period. Fishing is likely to be good during the middle of the month.

LIBRA (Mar. 15 to Apr. 14):

There will be several hurdles in the achievement of your objectives.

You will be able to cross them and achieve some increase in your business/professional sectors. In spite of all the setbacks, you will continue to be enthusiastic. You will be very busy with some work or the other from 11-14. Promotion of your personal interests is indicated in the later half of the month. Certain matters happening either in your company or at government level would cause considerable irksomeness to you. On the whole your business/professional interests would improve during the month. You may experience encouraging fishing results around 11 and 18.

SCORPIO (Apr. 15 to May 14):

While you will face some obstacles, there are indications that you will be in lime-light owing to some achievement or the other and your views will be actively sought. Unfinished business/professional matters will worry you.

You will undertake some activities in a confidential manner. Be careful about doubtful financial propositions you may receive towards middle of the month. You may initiate a money making trend in the later part of the month. An unexpected financial gain is possible around 28. Contacts with some distant persons may also develop towards end of the month. You may achieve substantial fishing results in the 2nd and last week.

SAGITTARIUS (May 15 to June 14):

While several problems may develop, you will get over all of them because of your abilities and power of persuasion. With ingenuity you will extricate yourself from a tight spot. You may be busy during the 2nd week concerning a problem but all this may leave you in confusion. There is a possibility of some mix-up in financial matters.

Your imaginative nature will get sharpened during the month. Your powers of expression will also improve. All this will lead to happiness. Beware of some confusion towards the end of the month. You can anticipate good fishing between 7-20.

CAPRICORN (June 15 to July 14):

There can be encouraging developments in the first week. Whatever be the provocation do not defy authorities. This is a good period to bring out your inner talents and innovative ideas for presentation to the right people. However, there will be several people who will be trying to pull you down, not knowing that you have hidden defences. There may be improvement in your finances. A long standing difficulty may get resolved. Fishing will be generally good during the entire period.

AQUARIUS (July 15 to Aug. 14):

Beware of your health. There will be some depression in your

activities in the early part of the month. There will however be improvement as days pass by.. There is a likelihood of sweeping changes in your relationship with others. There is a likelihood of your being in a happy mood during the later part of the month. You can expect satisfactory fishing results in the second and third week.

PICES (Aug. 15 to Sept. 14):

You will get deeply involved in your career matters and this may affect your other interests. It is better to attend to your work, based on priorities. 9 Dec. seems to be a good day for any creative effort. On 13-14 there is a likelihood of receiving news of a promotion, a better job or something such. Second fortnight is generally favourable. In the third week you may step up your efforts for achieving a better status for your job and you will probably achieve this. You will be flexible and calm and understanding, which would win over the tactics of others. You can expect good fishing during 14-20 of this month.

NATIONAL

Mr. Damodar Munuswamy, Minister for Panchayat Raj, said that the government would take action on those who obstructed the fishermen from fishing in the village tanks and other resources.

* * *

SLOW PROGRESS UNDER WORLD BANK PROJECT

Under the World Project for development of integrated fishing harbour projects, it was envisaged that 360 mechanised boats in A.P. and 168 mechanised boats in Gujarat (revised target) would be introduced. Although over 3 years have passed, in A.P. only 74 mechanised boats have been introduced so far. In Gujarat 147 were introduced.

* * *

FFDAs

There are now 108 fish farmers development agencies in the country now. All the states in the Union including Himachal Pradesh and J&K have been covered by the agencies. Besides these, U.P. has decided to set up these agencies in all the districts excepting hill districts, on its own. It is understood that Tamilnadu is also thinking on the same lines.

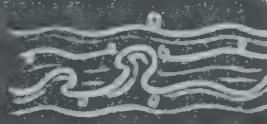
Instead of spreading funds on unproductive departmental schemes, it is desirable that state governments follow the example of U.P. and readjust the available funds and organise their inland fish production through fish farmers development agencies, by setting them up in all the districts in their respective states.

* * *

NATIONAL FISH SEED PROGRAMME

A massive programme for augmenting fish seed production in

NEWS WAVES



AVOID MIDDLEMEN. A.P. CHIEF MINISTER ADVISES FISHERMEN

While inaugurating the Andhra Pradesh State Fishermen's Cooperatives Conference at Hyderabad, Mr. Vijaya Bhasker Reddy, Chief Minister of Andhra Pradesh advised the fishermen to avoid meddling by middle men in their business.

The Chief Minister said that many corporations in Andhra Pradesh which according to him were formed mostly for the benefit of the political advantages

have been suffering tremendous losses. He said that the situation was very bad and the real purpose of the welfare of the people was not being served. Pointing out the crippling situation in the Andhra Pradesh Fisheries Corporation, Mr. Vijaya Bhaskar Reddy said that middle men were looting the poor taking advantage of the developmental schemes provided for the benefit of fishermen and tribals. This should be avoided, he said. He pleaded for integrity and morality in the functioning of the cooperatives.

the country has been launched by the Central Government. This programme covers the states of Andhra Pradesh, Tamilnadu, Maharashtra, Haryana, Punjab, Kerala, Karnataka, Rajasthan, Assam, Gujarat, Himachal Pradesh, and Tripura. It also covers the Damodar Valley Project and Tungabhadra Dam. Bihar, U.P., West Bengal, Orissa and M.P. are excluded from the purview of the scheme as these are already covered under a World Bank Project.

It is envisaged that two seed farms of 10 ha extent each will be set up in each of the states. The total outlay per farm for each of the states is Rs. 39 lakhs. Of this 24.36 lakhs (70%) will be given as loan. Thus, each state will get Rs. 49.72 lakhs as loan. The ministry of agriculture has already issued token sanctions to the various states releasing a loan of Rs. 45 lakhs in all.

A.P. GOVT'S PLANS TO SET UP MAJOR B.W. FARM

It is understood that the A.P. Government has sought assistance from the Centre under the Central scheme for setting up brackishwater farms for assistance to set up a 300 hectare brackishwater farm.

Under the Central scheme all the eight coastal states are eligible to obtain assistance for setting up brackishwater farms. The expenditure towards area development and setting up of hatcheries will be shared on 50:50 basis between the Centre and State concerned. The rest of the expenditure will be borne entirely by the Centre.

PERMITS FOR NON-MECHANISED BOATS

Under the Maharashtra Sea Regulation Act, 1981 permits from

the Government of Maharashtra are essential, effective from August 4, 1982, for non-mechanised fishing boats operating off the state's coast line.

These non-mechanised fishing boats have to take permission from the Government to fish in the coastal area. According to the governmental sources, there are certain areas off the state where the fishing for non-mechanised boats are reserved.

The government of Maharashtra proposes to oversee the matters in this regard with the help of district level committees.

NEW FISHING HARBOURS

The Government of India have under consideration plans for construction of a fishing harbour at Paradeep at the cost of Rs. 8 crores. Another project at Ariankuppam river in Pondicherry was cleared by the Government.

GOOD SHRIMP SEASON SETS NEW RECORD IN EXPORTS

Marine products exports from India have reached an all time high of Rs. 38 crores during the month of July, 1982. Previous peak marked was during December, 1981 when the exports stood at the figure of Rs. 29.85 crores.

The increase was attributed to good shrimp season, and increased prices in the International markets in respect of items like shrimp and lobster tails.

REACTIONS ON BLINDING LOBSTERS

In an interesting letter published in the columns of The Hindu recently Mr. S.N. Rajah, Executive Secretary of Society for Prevention of Cruelty to Animals

questioned the necessity for blinding the lobsters for quicker growth.

He has learnt from scientists in the Central Marine Fisheries Research Institute's stationed at Madras (Dr. Krishnamurthy and his colleagues Dr. Prasad and Mr. Thampi) that about dozen lobsters were blinded by means of electrical instruments. He has learnt that the removal of one eye ball would cause quicker moulting in the lobsters. Besides the blinded lobsters did not have any disadvantage over losing one eye. Their behaviour was normal. However, the experiments proved that the blinding of lobsters is a bit expensive.

Stating such experiments are carried over all kinds of animals through out the world Mr. Rajah questions if it is necessary to subject the animals to such experimentations.

Mr. Rajah states that experimentation and operations on animals is allowed legally under the provisions made in the Prevention of Cruelty to Animals Act 1960.

Also the Act has heralded the formation of a committee for the Control and Supervision of Experiments on Animal in 1964. But that was abolished by the Janata Government, Mr. Rajah says.

In another letter one Indira Raman from Visakhapatnam expressed that the police in Bhagalpur could call themselves as scientists because they also have tried to blind the criminals, in the same manner as the scientists of CMFRI.

WORLD BANK TEAM VISITS VISAKHAPATNAM

A three member world bank team under the leadership of Mr. Vicious

(economist) and another two members visited Visakhapatnam from 6-10 October 1982. The other two members of the team were Mr. Van Santeen, (economist) and Mr. Meeke, Harbour Engineer. Mr. Santeen came first and was at Visakhapatnam from 6-8 October. During his stay he made a study on working of the mechanised fishing boats at Visakhapatnam. He expressed the view that introducing more number of mechanised boats for operation from Visakhapatnam had to be done only after a careful study of the present working results. He made comprehensive study of the situation before leaving for Bhubaneswar. It is understood that his plan was to visit Astarang with a view to studying the possibilities of introducing mechanised fishing boats for operation from that place.

Mr. Santeen also felt that the earlier assessments concerning fishery potential and the number of fishing vessels to be introduced at Visakhapatnam Port were an under estimate. He was impressed by the impact made as a result of the facilities provided at the Vizag fishing harbour. He also expressed the view that the facilities for the operation of fishing boats could have been much more.

Mr. Vidieus concentrated more of his time in regard to progress in the construction of the 8 feeder roads connecting fishing villages to the roadheads in Visakhapatnam area, sanctioned by the world bank. He felt that the progress in this regard was slow and not satisfactory. He was told that owing to certain legal complications the work was delayed and the work would be completed as quickly as possible. Mr. Vidieus was happy to note that the second stage of fishing harbour was completed before schedule, in refreshing contrast to other places.

He was told by the port trust authorities that they submitted proposals for the third stage of the harbour with an outlay of Rs. 6 crores to the Ministry of Agriculture. He said that this proposal was not received by the world bank and that it was probable that the Ministry of Agriculture would themselves provide financial assistance for this.

* * *

'MANGI' BRAND OF SRINIVASA SFA FOODS OFF U.S. BLOCK LIST

It is understood that the FDA of U.S. has removed 'MANGI' brand of Srinivasa Sea Foods from their block list. This was done only after satisfying themselves about the consistent good quality of the brand.

This being so, the management of M/s. Srinivasa Sea Foods was surprised to get a letter from the Export Inspection Agency-Madras that a consignment of frozen shrimps shipped by them for Boston was detained at the port of destination on 27th October 1981 for the reason that it contained salmonella/arizona organisms coupled with decomposed shrimps. The company was earlier informed by the importers that the consignment was cleared without any problem. This fact was brought to the notice of EIA-Madras by the company with documentary evidence of a reply received from the importer.

* * *

MPEDA TAKES PREVENTIVE STEPS AGAINST CHOLERA

The Marine Products Export Development Authority has alerted all shrimp producing centres in the country to take stringent measures to prevent the incidence of cholera in their surroundings.

Production centres in Kerala, Karnataka and Tamilnadu were

asked to maintain a high order of hygiene. A national level extension programme was planned to educate personnel on immunisation and hygiene.

The alert by the MPEDA was given due to reported incidence of Cholera in the consignments that were imported into Japan from Thailand and Philippines.

* * *

BRITANNIA EXCELS

The trawlers of Britannia operating from Visakhapatnam were in their peak form particularly in October 1982. During the month, between them, they landed a headless shrimp catch of nearly 33 tonnes. Apart from this, Britannia trawlers have been consistently landing higher catches than others, all through. The success is attributable, in the main, to effective management.

* * *

JMPIA ASSURES HELP IN DIVERSIFICATION

In a meeting held between Mr. Shivraj V. Patil, Union Minister of Commerce and Mr. Shirahama, President of the Japan Marine Products Importers Association at Tokyo recently, it was promised that Japan would help India in increasing and diversification of fish products.

Technical collaboration was sought by the Indian minister for faster development of the under-utilised species. Mr. Patil was accompanied by Mr. C. Venkataraman, Additional Secretary, and Mrs. Usha Vohra, Joint Secretary in the Ministry of Commerce, Government of India. Mr. Shirahama was assisted at the discussion by Mr. T. Morikawa and Mr. Tsuzuki, Managing Director and Chairman of the Shrimp Committee in JMPIA.

DO LOBSTERS FEEL PAIN WHEN ABLATED?

A workshop on marine invertebrate reproduction was held recently in Madras for 15 days under the auspices of the Department of Zoology, Madras and the Central Marine Fisheries Research Institute, Cochin. A major question discussed at the workshop related to the causation of pain or suffering to lobsters when their eye stalks are removed to achieve faster rate of growth in lobsters.

Dr. Guha Prasad, Professor Emeritus at the CMFRI expressed the view that the question of pain or suffering in lobsters could not be equated with our own standards and our projection of mind. He said that there was opposition some years back to the removal of the legs of frogs for consumption. This objection died down when a humane method of cutting the legs was evolved. It was felt that the question was not one of the pain but of removing an important sensory organ such as the eye stalk from the animal.

Lobsters and other crustaceans are densely packed with sensory mechanisms and it was not known whether any pain was felt by lobsters when their eye stalks were removed, it was felt at the workshop.

Ablation of eyes of crustaceans to accelerate their growth is not a new idea. This was known as early as 1905. A nerve-oriented secretory organ located just below the eye ball is known to have a negative influence on physical growth and ovulation in crustaceans. Once the eye ball is removed, growth gets accelerated and ova formations gains momentum. In prawn hatcheries it is a common practice to remove one eye for increasing the reproductive phase. Readers are aware that recently

scientists at the CMFRI at their Kovalam laboratory achieved abnormal growth in lobsters through removal of one of the eye stalks of lobsters.

Dr. M. Santappa, Vice Chancellor, Madras University inaugurated the workshop. He exhorted the participating scientists to evolve new techniques in achieving improved growth and higher order of the production in economically important invertebrates.

R.K.R. GONELA IS NEW CHAIRMAN OF VIZAG PORT TRUST

Mr. R.K.R. Gonela, till recently secretary, small scale industries, government of A.P., has taken over charge as chairman, Visakhapatnam Port Trust from Mr. T.R. Prasad, who has completed his tenure in the post.

The sea fishing industry is greatly indebted to Mr. T.R. Prasad for the special recognition given by him to the Industry and the infra-structural facilities provided by him, together with a back-up of an organisational mechanism, for the operation of fishing vessels from the fishing harbour at Visakhapatnam. Under his leadership the second stage of the fishing harbour was completed ahead of schedule. The fishing industry is confident that under the Chairmanship of Mr. R.K.R. Gonela, who is known for his dynamism and quick and progressive decisions, the same approach will continue.

N. P. SINGH MEETS UNION FINANCE SECRETARY

Mr. N. P. Singh, President, Association of Indian Fishery Industries met the Union Finance Secretary on 11th October 1982. During the meeting, it is understood that the various promotional measures necessary to give a boost to deep

sea fishing industry with reference to the financial implications were discussed.

CHARTER PERMISSION

It is understood that the Ministry of Agriculture has issued a letter of intent to M. s. Nav Bharat Ferro Alloys for obtaining three pairs of bull trawlers and two gill netters on charter from a Hongkong Fishing Company. Unlike the condition stipulated in the letter of intents issued around May 1982, it was stipulated in the case of Nav Bharat that bank guarantee of Rs. 2 lakhs should be provided per vessel.

NEW GUIDE LINES FOR CHARTERING OF FISHING VESSELS

The Department of Agriculture notified a new set of terms and conditions for chartering of fishing vessels. The new terms and conditions have been introduced so as to bring them in conformity with the provisions in the maritime zones of India (Regulation of fishing by foreign vessels) Act, 1981.

SUNDARESAN TRANSFERRED

Mr. Sundaresan, Managing Director, Kerala Fisheries Corporation has been transferred

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recently. Mr. Choudhury, Secretary, fisheries, Kerala is now in additional charge of the post.

* * *

TRAWLER IMPORT PERMISSION

It is understood that some of the parties who had permissions for import of trawlers from sources such as USA and Japan have been advised by the Ministry to make fresh applications, as their earlier applications were very old. In other words, the long pending applications stand rejected. The companies concerned are in a dejected mood as they have to start all over once again.

* * *

INDIGINOUS CONSTRUCTION OF FISHING VESSELS

It is understood that four fishing companies have presented applications to the Ministry of Agriculture for forwarding their requests for loan from SDFC for the construction of trawlers at the Shipyard of N.N. Ship Builders, Bombay. This Shipyard, it is stated, has entered into a joint venture with M/s. Bender Ship Builders, Mobile, USA for the supply of detailed shop floor drawings of proven shrimp trawlers of about 28 m length.

It is learnt that Chowgule's Shipyard has received orders for the construction of five Nos. of shrimp trawlers from five companies, who have been able to secure loan assistance from SDFC. The release of loan is held up, it is stated, for want of a decision from the ministry of shipping and transport concerning release of subsidies. It is also not known whether SDFC would release the loan on strength of an interim guarantee given by the shipyard.

PEEJAY INDO-BULGARIAN IN OPERATION AGAIN

M/s Peejay Indo-Bulgarian Fisheries Limited, Delhi seems to be the luckiest of all the companies. Unlike all others, within three months of their application they could get the letter of intent and the subsequent permission within a short duration of one month. Shortly after this, their chartered vessel steamed into Bombay harbour. Within three days, all clearances were completed and the vessel sailed on 6th October 1982.

* * *

DR. GOKHALE JOINS KONKAN

It is understood that Dr. S.V. Gokhale has rejoined (he was earlier with Konkani) Konkani Fisheries Private Limited. It is stated that he has been asked to develop a project for chartering of fishing vessels.

* * *

TROPICAL SHIPPING COMPANY

Out of five pairs of bull trawlers to be chartered by the, M/s Tropical Shipping Company have been operating three pairs till recently. The fourth pair has arrived from Singapore recently and has become operational.

* * *

TRAINING PROGRAMME ON PRAWN FARMING

About 42 rural youths belonging to the coastal villages of A.P. were given training for 15 days on prawn farming at Thallapalem near Machilipatnam by the Marine Products Export Development Authority during October, 1982.

The training involved collection and transport of shrimp seed at the Centre's field camp at Thallapalem.

The trained youth are expected to be able to get self-employed

in shrimp seed trade which is being developed through the efforts of MPEDA.

The youth for the training programme were selected by the District Rural Development Agency, Krishna district.

Cultivable prawn seeds are in good demand all along the coastline of A.P. The trained youth are expected to give a boost to prawn farming by supplying of sufficient quantities of seed to farmers.

* * *

WORKSHOP ON MARINE LIVING RESOURCES DATA

A workshop on acquisition and dissemination of data on marine living resources of Indian seas was held at the Central Marine Fisheries Research Institute, Cochin from 21-23 October 1982. The workshop was held at the instance of the planning commission for evolving a uniform national system for the acquisition, analysis, presentation and dissemination of the data. A report on this workshop will be published in the next issue of Fishing Chimes.

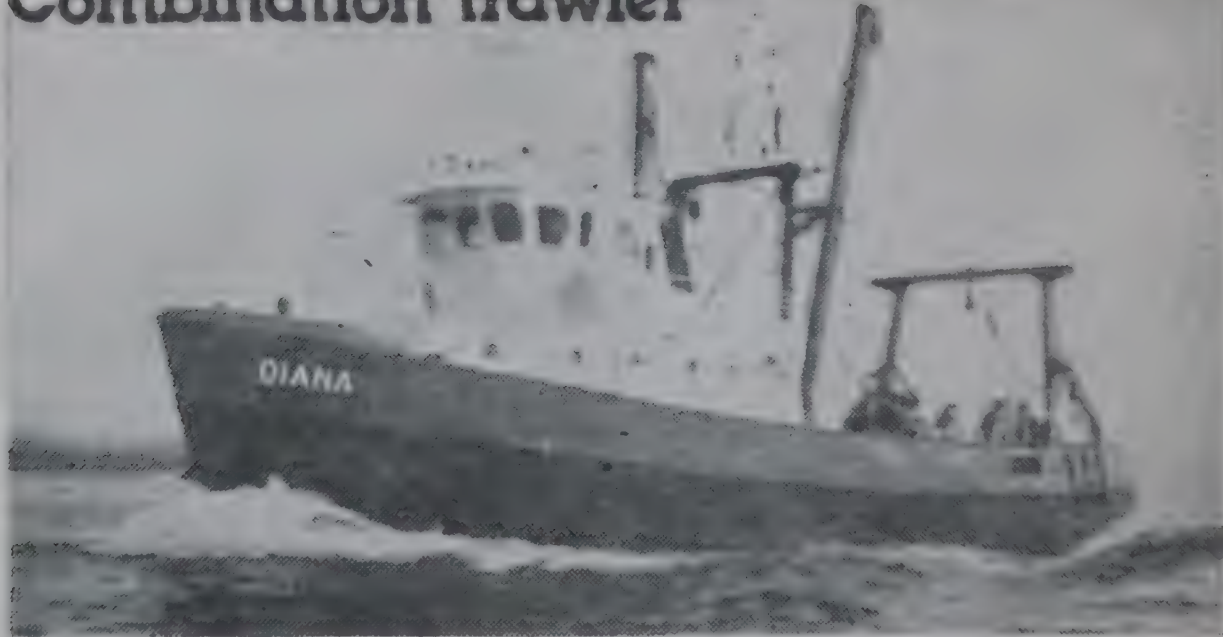
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TATA TRAWLER OPERATIONS STOPPED INDEFINITELY

Faced with the ungrateful and unreasonable stand taken by a section of the floating staff of the company, the deep sea fishing division of Tata Oil Mills has been compelled to suspend their operations at Visakhapatnam indefinitely. The attitude of the belligerent section of the floating staff of Tata Oil Mills has caused dismay in fishery industrial circles. Tata Oil Mills has a benevolent approach couched with a social purpose in regard to service conditions of its employees.

It is understood that the suspended employees have approached the management for

Combination trawler



This type of vessel is custom built in series and is specially designed for as well beam as stern trawling in tropical waters.

The result is a stable vessel with a large working deck area and easy to handle in all respects.

The hull is of the single chine form, giving a large fish hold, a spacious engine room and a bigger accommodation under deck.

The hull is divided into six watertight compartments: forepeak, crew accommodation, engine room, fish hold, fuel tanks and afterpeak/netstore.

Freezing of the catch is done by the brine tank on the main deck and by a blast freezer in the hold.

The propulsion installation consists of a Caterpillar marine diesel engine of 270 kW (365 hp) at 1800 rev/min, driving a fixed pitch propeller.

The three-drum fish winch is hydraulic driven. Two auxiliary engines drive a compressor for the freezing installation, generator and a bilge pump.

In the superstructure are provided a galley/messroom, two toilet/shower cabins, two double and two single cabins.

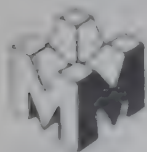
In the forepart below deck an eight berth crew compartment.

Nautical and fishing equipment, comprise among others radar, radio installation, direction finder and echosounder.

The vessel obtained the classification Lloyd's  100 A1 "trawler" and Lloyd's Machinery Certificate (LMC).

Main particulars:

length overall	23.50 m
length between p.p.	21.00 m
breadth mld.	6.50 m
depth at side	3.40 m
draft (mean)	2.65 m
fish hold capacity	abt 70 m ³
fuel oil capacity	abt 40 m ³
fresh water capacity	abt 15 m ³



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MEMBERS OF

HOLLAND CRAFT

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Export promotion group

reinstatement promising good behaviour but the management is not convinced about their sincerity.

* * *

MARSHALL VESSELS SAIL UNDER POLICE PROTECTION

Two trawlers of Marshall group sailed on 2nd Nov. 1982 under police protection. The help of the police had to be sought by the company as trouble shooting elements among the floating staff were not allowing the others to sail.

* * *

DEVI MARINES TO EXPAND THEIR ACTIVITIES

It is understood that M/s Devi Marine Food Products (P) Limited, Madras will soon be extending their processing operations to Kakinada and Tuticorin.

* * *

FISH FILLETING TRAINING PROGRAMME

Utilising assistance from EEC, MPEDA has organised a training programme in fish filleting at

Integrated Fisheries Project, Cochin. This programme commenced on 2nd Nov. and will conclude on 30th Nov. 1982. A number of exporters have sponsored their technicians, who are participating in the course.

* * *

OFFICE BEARERS OF MPEA OF EASTERN INDIA, CALCUTTA

The new office bearers of the Marine Products Exporters Association of Eastern India, Calcutta, has been elected recently for the year 1982-83. These are:

Mr. P. A. Durai (President),
Mr. D. Mitra (Vice-President),
Mr. J. Bhattacharjee (Treasurer)
and Mr. C. M. S. Rao (Secretary).

* * *

FAST CONTAINER SERVICE TO JAPAN

The Malaysian International Shipping Company has recently introduced a fast container service from Bombay to Japan via Cochin and Singapore. The ships will call at Bombay port once in a fortnight.

To achieve the figure of four to five million tons of production China has drawn out a clear cut programme.

Some of the points in the programme are: fish breeding by the state, collectives and individuals and clarifications of the rights of the water use, guaranteeing the supply of good breeding stock; Effective distribution of fry and fingerlings; finding more resources for feed; well planned construction of ponds etc.

* * *

GRASS CARPS SAVE EGYPTIAN IRRIGATION CANALS

When they built Aswan dam on river Nile in Egypt it was one of the most laudable constructive steps in the Arab world. But the feeling of elation was short-lived as silt began accumulating in the dam site and the water that flowed through the dam into canals which ran upto 50,000 kilometres became a nursery to water weeds. At several points the weeds were obstructing the flow of the water. It was estimated that atleast 300 tons of defoliants had to be used at a time to clear the weeds. This was not possible because the operation had to be carried out over four to five times a year which was sure to pollute the waters.

Therefore, the Ministry of Irrigation and Water Resources has struck upon the idea of introducing grass carps into the canals of Aswan dam. A collaboration plan with the Dutch was drawn out and as a result, several hatcheries and breeding centres were established at various points along the canals. Results were astounding. The areas where the grass carp was introduced was clear of weeds. It was reported that carps were even trying to eat away the foliage on the banks.

for a production of about five million tons per annum by the end of eighties. About half of the 20 million hectares of water areas in China is yet to be developed. There is an ample scope, experts feel. About 25 per cent of the water area now available could immediately be put into use for fish farming.

Between 1978 and 1981, China has achieved tremendous results in fresh water fish farming. The production rose by 30 per cent.

CHINESE SUCCESS MAY KEEP WORLD CULTURE OUTPUT STEADY

It is said that if China succeeds in its ambitious programme of increasing the fresh water fish-out-put at the rate of 15 per cent per year, the world output in fish farming would rise steadily till the end of the century.

The present yield of 1.5 million tons per year from pond culture in China is now set to leap

INTERNATIONAL

Simultaneously, attempts are being made to educate the people living on the banks not to hunt too many grass carps, since they were more valuable in the water than in the market. The Scientist, Dr. Samir who has developed the project has been training some more persons to help in the mission at Suez Canal University.

* * *

GIANT FRESHWATER PRAWN AND SNAKEHEAD GETS KEEN ATTENTION IN THAILAND

The Thailand Department of Fisheries has drawn a five year development plan on giant fresh water prawn (*Macrobrachium rosenbergii*) to meet local and international markets.

The department has set up a target for the production of fresh water prawn at 10,000 tons a year by the end of the proposed five year plan. At the moment the production of fresh water prawn in Thailand is 2000 tons per annum.

Group farming is advised by the department to those farmers who wish to obtain financial aid from the Bank for Agriculture and Agricultural Cooperatives (BAAC). Five year projects, undertaken by the groups of farmers have already been started in the water reservoirs in Khon kien, Kalasin and Chaiyaphum provinces. The promotional programmes set up by the department will enable a group of 75 farmers to culture prawn in 5,600 acres.

The groups consist of farmers selected by the Department of Fisheries. All the technical assistance would be provided to the group by the Department.

Thailand has been striving to make their nation self sufficient in

the production of fish without depending much on marine catch. For instance, to hasten the fisheries development in this direction the Government of Thailand is employing modern equipment. Its most important fish breeding lakes are being dredged by 250 hp powered dredgers to enable the fish to have more room. They have spent 7,50,000 pounds for acquiring three dredging vessels recently. These dredgers are being deployed in large lakes to remove the silt in massive proportions.

Yet another species that is drawing wide attention is the snakeheads (*Channa straita*). Its firm, white and almost boneless flesh is very popular in Thailand. It is being cultured in about 500 ponds in Thailand.

Snakeheads are air breathers and their capability to live for longer periods out of water has enabled the prospects of marketing easy. Moreover, the ponds where the snakeheads are being cultured could be stocked in high densities even if the oxygen rate is low.

At many markets the snakeheads are sold alive and for the Thai it is very delicious.

* * *

FAO PROJECT IN MALAYSIA AT TAKE OFF STAGE

A coastal aquaculture centre funded by the FAO/SIDA Bay of Bengal Programme has come to a take-off stage in Malaysia's Keda state. The pilot project here was meant for educating the people and train them in brackish water fish farming.

The project was established here after clearing a 24 ha mangrove swamp. The ponds are being stocked with spawn.

Training of hatchery staff and other technical hands has already been on full scale.

At Merbok project, experiments are underway for commercial culture of sea weeds.

* * *

CHINESE PRAWN BREEDING TAKES NEW TURN

A method developed by the Yellow Sea Aquatic Products Research Institute of Oceanography of the Chinese Academy of Sciences in breeding prawns by artificial means have been keeping the prawn farms all along the Chinese coast busy.

By mechanising the artificial breeding there is a possibility of raising the supply of larvae to about 1600 million to the farmers.

The mechanised artificial prawn breeding was proved successful last year when a large quantity of larvae were released in the Bohai sea.

* * *

MORE OXYGEN, MORE FISH

It was found at the Apparatebau Kronawitter, West Germany that intensive oxygenation in fish farms would treble the production. It was noticed that the fish when subjected to more aeration would develop good resistance against diseases and also the stocking capacity in the ponds could be considerably increased. The method called AGK Fluboll system involves oxygenation of water in the ponds, which increases the food intake of the fish. The method therefore proved to be good in achieving faster growth of the fish. The process could be operated with help of 0.5 hp. motors.

This system is picking up popularity in West Germany.

RAFTS AND ROPES PROVE GOOD FOR GREEN MUSSELS

The Singaporeans have struck on a new method for growing green mussel with less pains. In the place of poles, rafts and ropes are being extensively used to grow green mussels which contain larger proportions of meat among the shell fish.

The Government researchers have successfully been producing green mussels at experimental farms at Changi. The ropes are suspended from rafts and this has reduced the chance of poles with mussels being exposed during low tides. Moreover the manual operation in shifting the spat to larger ropes have been solved by using polyethylene ropes studded with coconut coir ropes at one metre interval. The spats are collected first on the smaller coir ropes attached to the polyethylene ropes and when they grow big they subsequently shift to bigger polyethylene ropes. This has reduced the manual operation which was hitherto in practice.

Better methods are being tried now on processing the harvested green mussel with mechanised machines. Though the rate of wastage is more now the researchers are confident that this could be improved upon easily.

Early in 1981, the Primary Production Department has allotted about 30 hectares in the Palu Ubin island for fish and green mussel culture.

* * *

SRI LANKA'S INLAND FISHERIES

About twenty five more tanks are going to be added to the existing 40 tanks at the Sri Lanka's biggest fresh water fish breeding centre at Ibbangkatuwain in

the central Mahaweli province. The centre adjoining the Dambulu Oya reservoir is the biggest effort by the Government of Sri Lanka in the development of fresh water fisheries. The project which began last year is due for completion by 1983.

The Government of Sri Lanka has allotted Rs. 10 million for the project and many more of such projects are scheduled to begin very soon.

* * *

AQUACULTURE SINGAPORE LTD AIMS FOR TWO MILLION FRY

The Aquaculture Singapore Pte Ltd on Palu Ubin, an off shore island in Singapore aims to produce two million fish fry.

Under guidance of a Taiwanese consultant the plant would be productive by the end of this year. The cost of the plant is one million Singapore dollars.

The Aquaculture Singapore proposes to sell the fry to the local farmers at a very reasonable price of five cents while the current market price is from 8 to 10 cents per each fry.

* * *

TILAPIA IN TROUBLE

Thousands of dead tilapia in the waters off South India are causing fears among the fishery officials in Sri Lanka. The dead tilapia are found to be mature measuring 15 to 20 cm long. The mystery disease causing the massive death among tilapia is yet to be identified. Meanwhile, the officials in Sri Lanka are watching the narrow water lane that connects India and Sri Lanka for any signs of spread of the disease.

* * *

THAI HATCHERY OPERATORS FORM ASSOCIATION

A new association was formed among the hatchery operators in

Thailand. In a recent inaugural meet at Bangkok, it was observed that Thailand could meet only four percent of the demand for sea bass roe in Asia and Australian markets. It was decided by the association to increase the supply of the sea bass roe since there is an increase in the demand.

* * *

CHINESE TRIUMPH IN SHRIMP PRODUCTION

Chinese have exceeded their shrimp production target by 11.5 per cent, during 1981.

Adopting artificial methods to breed shrimp larvae, the Chinese have increased their culture area to 90 counties and coastal cities from a mere dozen in 1978.

The shrimp breeding is managed by a national hatchery company established in 1979. China today has 800 technicians and skilled workers engaged in rearing penaeid shrimp.

* * *

KIDS START WORLD'S SMALLEST HATCHERY

Children at an elementary school in Hokkaido, Japan have been contributing their might to the world of fisheries by starting the smallest hatchery in the World that was ever recorded.

A little girl named, Yashiko Mishija is supposed to be the initiator of this project. It has began when she has come across a TV programme about the Sapporo Salmon Organisation. This organisation has been advising the people to clean up the river Tayoshira, so that the salmon could swim upstream freely to lay eggs. Yashiko suggested that Fast Whit Rock school in which she is studying should join the campaign. Her suggestion was readily agreed upon and as a result, the members of the organisation were advised

**SHRIMP AS FRESH AS WHEN THEY LAND
ON DECK OF OUR TRAWLERS**

AND AS YOU WANT

**HEAD-LESS, SHELL-ON
PEELED AND DEVEINED,
PEELED AND UNDEVEINED, OR
COOKED AND FROZEN !**

**WE BELIEVE IN INTEGRATED
FISHERY ACTIVITIES. THAT IS WHY WITHIN
A SHORT TIME WE ACQUIRED SIX FISHING
VESSELS, ESTABLISHED A MODERN
MARINE PRODUCTS PROCESSING PLANT AND
ALSO SET UP A WORKSHOP OF OUR OWN**

**OUR FROZEN SHRIMP, OWING TO ITS
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to help the school kids on how they should help the salmon fisheries. A small spring at the Sapporo's shrine was selected as breeding place for salmon. But still there was a problem. The salmon once gone could not come back due to inaccessability towards the Children's hatchery. This was again taken up by the kids with Hokkaido Development Bureau and they were promised that a fish ladder would be built at the place where the salmon could again come back to their hatchery.

These efforts of school kids have drawn the attention of entire Japan.

* * *

ELECTRONIC BEEPS TO FEED FISH

The tests conducted in Saiki Bay, Oita Prefecture, Japan in feeding fish has brought in a new concept of fish rearing in the sea.

The scientists at Saiki Bay used electronic sound signals to attract fish fry to certain points where the food was kept ready for them. The fry gathered instantly at those spots. The feeding proved to be easy with this method. The electronic sound beepers were fixed to floating structures at selected points and as the sounds emit, the fish gather there to find the food ready for them.

The sound frequency varies from fish to fish. Accordingly the farmers can feed particular breed at any time they want to. With the emergence of this method sea ranching would soon see advanced methods in the culture of fish. Probably there would be no need for enclosures.

The experiments were conducted by the Japan Society of Industrial Machinery Manufacturers. Companies such as Mitsui Engineering and the Taiyo Fishing

company took active part in these tests.

A demonstration plant would soon be constructed based on these tests to encourage this method among the farmers.

* * *

PAKISTAN TO DOUBLE FISH PRODUCTION IN SIND PROVINCE

With a Rs. 65 million project in hand to develop aquaculture in Sind Province, Pakistan aims to increase its fish production from 24,000 tons a year to 49,000 tons.

The Project has been approved by the Central Development Working Party of Pakistan.

According to the Minister of Food and Agriculture of Sind Province, the aid would be secured from the Asian Development Bank.

Fish Hatcheries at Thatta and Sukkur, after the completion of the Project would produce 300 million carp fry for distribution among the fish farmers. Besides, the Project is aimed at imparting technical education to the fish farmers in the region.

* * *

FLOATING HATCHERIES GO OPERATIONAL IN USSR

For the first time fry of valuable fish species are being grown in the mobile nurseries in USSR. The floating nursery is anchored in the Volga river near Kuibyshev.

The floating nursery attracted a considerable attention when it was exhibited in the Inrybprom fishing Exhibition in Leningrad in 1980. The hatchery vessel was built in Astrakhan. It could be powered either by electric supply from shore or by its own generator.

The hatchery vessel has its own laboratory, egg incubation section,

nursery tanks and kitchen for preparing feeds.

With the help of this mobile hatchery valuable species could be raised and restocked.

* * *

THAILAND SEEKS MASSIVE AID FOR FISH CULTURE

The Government of Thailand has asked for a loan of 2.5 million pounds from the Government of China for development of aquaculture. The assistance was sought with the main aim of developing aquaculture centre in Chiang Rai Province in Thailand.

Also the Government of Thailand has asked its people to volunteer in massive development programmes in raising culture potential in the country.

The Thai Government asked the volunteers to release about 66 million fish seed into lakes, reservoirs and ponds, covering more than a million hectares.

The target for 1986 in Thailand for fish production has been set at 270,000 tons.

* * *

TOO MUCH 'NORI' PROVES TOO BAD FOR JAPANESE

Nori, the breakfast seaweed delicacy of Japanese is spilling over the markets due to over production. Exceeding by four billion sheets against a target production of 7.5 billion sheets the Nori has brought in a difficult situation for Japanese marketers.

The demand at home has suffered a set back due to poor quality and the producers are blaming the pollution in waters. The poor quality resulted in reduction of prices at an alarming rate from 120 yen per a sheet of Nori to a mere 14.41 yen.

FISH FARMING IS A BILLION POUND BUSINESS IN THE WEST

Fish culture in Western Europe is increasing by ten to fifteen per cent per annum, according to Miss Dosha Kurtyanek, a researcher from SRI International.

Species from freshwater and sea water and clam and mussels are being cultivated throughout Europe from Ireland to West Germany. A total of 131000 tons of fish was cultured during 1980 and it is estimated that by 1985 the figure may reach 182000 tons.

Denmark is the major supplier of trout seed for entire Europe.

Ranching has become a favoured type of fisheries in Europe today. These projects are mostly oriented towards culture of salmon.

Most of the farms are relatively small but of late there has been heavy investments from the big industrial groups.

* * *

JAPAN, MIKADO OF MARINE PRODUCTS

Japan tops the world nations in consuming, producing and exporting marine products, all put together.

Having a mere one per cent of world's population Japan consumes 16 per cent of world marine production. 10 per cent of it is being imported into Japan at the cost of 3.3 billion dollars. The imported marine products into Japan range over 200 items.

Japan also stands 6th among the World's largest marine products exporters.

* * *

FISH IS TANKSFUL IN TIBET

Tibetans believe that fish is the incarnation of Gods. So they do

not eat fish. The tanks studded all over Tibet are full of fish. Perhaps nowhere in the world such density of fish population exists. Fish literally spills over the tanks. Nowadays, Chinese Government is trying to motivate Tibetans to take to fish eating.

Efforts are being made to encourage people to eat fish, since it is available in very large quantities and provides good nutrition.

* * *

HIGH DEMAND FOR SHARKS IN USA

According to American Marine Fisheries Service Reports, Californian fishermen land about 1,000 tons of pacific sharks every year. There has been a rise in the demand for sharks in USA. Particularly for the fins of thresher sharks, there has been a steady rise in demand.

If the hunt for these sharks continues at this rate, the report says that there would soon be a depletion of thresher sharks.

* * *

HEAVY LANDINGS IN CHILE

Latest statistics for the year 1981 of Chile reveal that the fish landings in that country have risen by 21%. The catches of anchovita tripled, while horse mackerel landings doubled.

According to some Spanish reports, out of three and a half million tons catch of 1981 only 500,000 tons were consumed inside the Chile, while the rest were exported to Europe at throwaway prices.

* * *

EEZ NOT MUCH OF USE TO USA FISHERMEN

A study prepared by Miss Norma Zippia for FIND-SVP reveals that EEZ of United States of America

is of little use to its fishermen. It is stated that due to limited choices of American consumers of the species available in their EEZ rendered the US fishermen to limit their catch to only those species which could bring money.

The study says that out of 500 species available in the waters of US only 12 of them are favoured. Besides, the vessels of the US are not funded by the government, hence the export of the underutilised species to foreign countries has less prospects. Most of US fishing vessels do not carry processing equipment abroad. There is no good support on the shore to utilise the catch.

While the salmon fleet has been on smooth going, the tuna catch in US has reduced considerably and as a result, about 57% of it is being imported. And nothing much was done on the recommendations provided under the Kennedy-Saltonstall law to promote the development of US fishing fleet and improve the situation on shore by expanding the freezing and processing plants. On top of it US government forbids fishing crafts built in foreign countries to fly US flags. The vessels built in US are reported to be small and has lesser fuel efficiency. And the cost is stated to be exorbitant. And the price of fish is not competitive with that of meat and poultry. According to Miss Zippin, American fishermen do not stay off the land for longer periods like Japanese, Russians and other Europeans.

The only hope lying in the development of US fishing as seen by Miss Zippin is that the American consumers should take to other under-utilised species and the processing and freezing plants should grow on a larger scale. However, it takes lot of experimen-

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tation and promotional work, Miss Zippin feels.

As for the fishing of other nations in the EEZ of US, Japanese, Russians and other European nations are doing a fine job, since they are equipped with processing and freezing plants on board and also the variety of fish they catch is wider.

* * *

MEETING OF INDIAN OCEAN AND INDO-PACIFIC FISHERY COMMISSION

A Conference participated by Fishery experts from 47 member countries including India coming under the fold of Indian Ocean Fishery Commission and Indo-Pacific Fishery Commission was held from November 11 at Kutabali in Indonesia.

The Conference was held for 8 days under the auspices of the food and agriculture organisation. About 200 delegates from the 47 members countries attend the meeting. India was represented at the meeting by Mr. S. P. Mukherjee, Secretary, Agriculture, government of India.

* * *

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A simple technique for prolonging the shelf life of fish has been standardised by the Environmental Research Institute of Kyoto University, Japan. This technique reduces spoilage and transportation costs. Before shipment, the fish are anaesthetized by adding a mixture of 50% carbon dioxide and 50% oxygen to water. The fish so anaesthetized can withstand transportation for 30 hours. After reaching the destination, the fish revive in a few minutes of placing them in water.



BANGLA DESH IMPORTS JAPANESE SHRIMP TRAWLERS

Bangla Desh has recently imported three Japanese shrimp trawlers. It is expected that Bangla Desh will also import three more such trawlers. With these six

trawlers, it is expected that, Bangla Desh will be exporting 600 tonnes of shrimp to Japan. Export of shrimps in 2kg. block and 8kg. bulk pack from Bangla Desh to Japan has already commenced.

MARINE Vs. INLAND FISHERIES IN INDIA

Contd. from P. 36

vessels through integrated multi-purpose fishery cooperative societies, provision of floating landing centres in the fishing grounds, demarcation of fishing areas for different types of fishing crafts, rational use of mechanisation etc. etc.

DEFINING CONCEPTS

Last but not the least important is the need of defining the concepts of various fishery terms such as culture and capture fisheries; inshore, off-shore and deep sea waters; even fishermen including small, medium and commercial fishermen; small, medium and large waters etc. etc. in the context of our fisheries developmental stages and the technological developments in different types of fisheries. This will also help in collecting fishery statistics based on uniform standards.

COCHIN SCENE

Contd. from P. 27

spread to northern and southern coasts of Kerala whereby many traditional fishermen are forced to remain at short, lest they face casualties at sea. The problem needs a keen study.

Meanwhile the harbour authorities have announced a slight increase in the tariff rates at the harbour in order to meet the increased administrative costs.

ANSWERS TO QUIZ:

1) b, 2) c, 3) c, 4) b, 5) c, 6) c, 7) b, 8) b, 9) c, 10) a, 11) b, 12) b, 13) c, 14) c, 15) a.

Answers to Fishermens Jumble:

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Fishing Chimes

December 1982

Vol. 2

No. 9

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Letters to the Editor

Dear Sir,

The 'Fishermen's Jumble' in your September 1982 issue is erroneous. The letters in the fish squares relating to each word do not lead to the formation of the phrase 'Integrated farming', which is the answer. The answer has no 'H' in it. Yet, this is one of the letters in the third word 'Menhaden' covered by a square.

P. Ramakumar
Bombay

(There was an inadvertent mix-up at the time of fairing the jumble in Indian Ink. The lapse on our part is regretted—Ed.)

Dear Sir,

Referring to your comments entitled 'Deep-sea of Indian deep-sea fishing' in your October 1982 issue, I have to say that all this confusion would not have arisen if the government followed a clear-cut policy and took quick decisions. The declared policy of the government was to encourage all sectors, be it large, medium or small scale companies or co-operatives. If the revised policy is not to encourage larger houses, government should clearly say so.

On the other hand, if the intention is not to discriminate or to give a lower priority, it should

16 September 1982 at Visakhapatnam, reported in your October 1982 issue was zero. None of the important issues raised by the President A.I.F.I. were seriously taken note of. There was no positive effort to find a way to quicken the pace of introduction of deep-sea fishing vessels. The approach in dealing with the subject had been in negative terms. Regarding 1977 trawler import scheme, the questions asked by the Chairman were: why are the parties changing sources of import so often?; why is there a price increase and so on, followed by a statement that it will be better to close down the scheme. It probably gives joy to close down potential schemes

SEASON'S GREETINGS

*We Wish Our Subscribers, Advertisers,
Authors and Readers A Happy
and Prosperous 1983*

Editor and Staff
FISHING CHIMES

Dear Sir,

The colour and cover-page get-up of your September issue are not of the same standard as the earlier issues of Fishing Chimes. Readers may prefer to see a photograph on the cover page instead of an art drawing.

M. P. Sen
Calcutta

be specifically announced. It is not correct on the part of the government to leave the deep-sea fishing sector in utter confusion and inaction.

G. P. Chowdary
Guntur

* * *

Dear Sir,

The result of the meeting held on

rather than making them fruitful. The ministry is not prepared to indicate any time limits for clearances of applications received from enterprises. In other words, the parties with commitments to fulfill have to wait indefinitely. What a state of affairs!

N. Venkateswarlu (Capt.)
Visakhapatnam

THE EXECUTION

The recent trends in the processing of applications for acquisition of fishing vessels through import under the 1977 scheme from deep sea fishing enterprises in the department of Agriculture would lead one to believe that the effort is to kill the proposals instead of putting life into them. It all appears to be a virtual execution. There are several instances to come to this conclusion.

EXPLICABLE ATTITUDE

One company was permitted to import two trawlers from Australia. The department of Agriculture took over nine months to recommend their case to SDFC to grant loan, in spite of frequent requests from the company to expedite their application. In the meanwhile the Australian shipyard withdrew their offer, as they secured a far better price from Saudi Arabia for the trawlers nearing completion. In this situation, the company had to apply for change in source of import, within the amount sanctioned. Although there was no fault on the part of the company, the request continues to be pending in the department of Agriculture for over 18 months. The intention of the government in delaying a decision is probably to kill the proposal.

CONFOUNDING HOLD-UP

Several applications for import of trawlers from Holland were approved at a price of Rs. 67 lakhs each,

after a considerable time-lag. Before the parties could fulfill the formalities, the foreign shipyard increased the price to Rs. 72 lakhs. As this increase was not acceptable to the government the shipyard agreed to conform to the earlier price. In the meanwhile the time limit given in the permission letter was over. Therefore, the parties requested for an extension of time. Although several months have passed after this, the final decision of the government on this was not forthcoming till the time of this writing.

There are applications for grant of loans for the import of several trawlers from Poland pending for a long time in the department of agriculture. The department has to forward them to the SDFC for grant of loans, as permissions for import were issued earlier. For reasons not known to the buyers, the applications continue to be pending in the department.

A POLICY WITHOUT FAITH?

The deep sea fishing industry is alarmed at the state of affairs, keeping in mind the declared policy of the government. If government is not keen on development of deep sea fishing in our EEZ, it should honestly say so, so that the interested entrepreneurs can save their time and energies and divert them to other fruitful activities. It is a cruel act on the part of the government to

announce a policy in which they have no faith for implementation.

IS THAT BECAUSE OF FEW VOTES?

From a political angle perhaps development of deep sea fishing has no potential. The men involved are few and the voting potential is limited. However, looked at from national economic development and earning of foreign exchange it has a great potential.

It has to be conceded that the small fishermen claim the prior attention of the government. Their socio-economic condition has to be improved. Even so, we do not see much being done in this sector also.

ACT FAST, PLEASE!!

The socio-economic development of fishermen involving upgradation of their professional capabilities on the one hand, and the development of deep sea fishing in our EEZ for national benefit on the other are equally important. It is of utmost urgency that government determines the inter-se priorities and clearly tell those involved in the sector about the same. If it is the intention to slow down on development of deep sea fishing, it should be clearly stated. On the other hand, if there is no such intention, the pending cases should be cleared once and for all, this way or that way. The dilation and the uncertainty makes the lives of entrepreneurs miserable, apart from waste of time and energy. It is also of utmost importance to take up purposeful schemes, not giving mere doles, for the socio-economic uplift of fishermen.

Heartening Trend

The efforts being made by the Union Department of Agriculture in regard to promotion of inland fish culture are heartening. Inland fisheries are a state subject and primary initiative in promoting inland fisheries should come from the state fisheries departments. Unfortunately this initiative is not visible in respect of most of the states. It is commendable that the Centre has been striving to awaken the state fisheries departments to take steps to give a fillip to inland fishery development. In a way, the Centre is being more catholic than the pope himself.

FFDA: REMARKABLE PERFORMANCE

The scheme for setting up fish farmers development agencies has been extended to all the states in India. From a mere coverage of a few districts when the scheme started in seventies, there are now 108 districts covered by the agencies. The work under these agencies has led to remarkable results by way of substantial returns to the farmers. This has given rise to a remarkable demonstrational effect owing to which several persons have taken to fish cultural activities on their own.

The Centre has introduced a scheme for the supply of induced breeding kits to the farmers at subsidised rates. This has proved to be an effective means to popularise

induced breeding of major carps. Under another scheme for transfer of total aquaculture technology, two ponds in each FFDA are earmarked for demonstration of the technology in all its aspects in actual practice. This is found to be of great help to the farmers to have a model work to follow in their own ponds.

MORE SEED

In several states such as Andhra Pradesh, scores of private fish seed farms have sprung up, owing to increasing demand for fish seed. In order to upgrade seed production activity, the union department of agriculture has introduced a scheme for the setting up of 2 nos. of 10 ha seed farms on improved lines in each of the states with central assistance. Each of these farms will

have a modern hatchery where fish eggs can be hatched under controlled conditions, leading to a higher percentage of realisation.

Under the World Bank scheme introduced in the states of Uttar Pradesh, Madhya Pradesh, West Bengal, Maharashtra and Orissa, extensive model fish seed farms containing hatcheries are being set up. The work in this regard is progressing and all that is possible is being done for the completion of the farms in the shortest possible time. It is on the state fisheries departments concerned to take effective steps in this regard and fulfill the confidence the centre has in them.

Seeing the usefulness of hatcheries, several states have undertaken setting them up on their own. Haryana, Madhya Pradesh and Tamilnadu are some of them. It is of utmost urgency that all the state fisheries departments take up schemes to encourage entrepreneurs to set up modern hatcheries.



TAPPING UNDERGROUND BRACKISHWATER

In regard to brackishwater fish farming also, the union department of agriculture has taken up a scheme to assist all coastal states and the states of Punjab and Haryana which have underground brackishwater resources to promote brackishwater farming in the private sector. Under this scheme, the farms to be set up, while individual ponds will be managed by individual farmers, all supplies and services will be taken care of by the state fisheries departments. The excavated ponds will be given to the farmers on hire-purchase or long term lease. The cost involved in the excavation of canals and erection of sluices will be met entirely by the government and the amounts payable by the farmers will be worked out on the basis of costs for pond excavation. A small charge



will be levied for the common services rendered. A.P. Government has already approached the centre with a proposal to set up a large brackishwater farm in the state. This scheme would not only enable the utilisation of fallow brackishwater areas for fish production but would also serve

the social purpose of providing livelihood to several families.

We are confident that all the state fisheries departments would make the best use of the progressive schemes introduced by the centre and make them a handle to achieve a self-generating activity.

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Workshop on "Acquisition and Dissemination of Data on Marine Living Resources of Indian Seas"

Central Marine Fisheries Research Institute,
Cochin 21-23 Oct. 1982

The Central Marine Fisheries Research Institute, Cochin has been collecting, processing and disseminating data on exploited marine fishery resources over the past three decades. The Institute has been also collecting fishing data for assessment of the fish stocks in major fisheries and also environmental data for studying the inter relationships. Socio economic aspects in the marine fisheries sector as well as impact studies are also undertaken by the CMFRI from time to time.

In view of the voluminous data that is collected by the Institute the planning commission has advised the Institute to conduct an All India workshop on acquisition and dissemination of data on marine living resources and in that light to develop the National Data Centre for Marine Fisheries with a computerised system.

This workshop was held at CMFRI Cochin at CMFRI's annexe at The Reddiar Press Buildings from October 21 to 23, 1982 to discuss matters relating to data acquisition systems, processing and dissemination. There was a consensus at the workshop that the data collection system should be streamlined and the data should be computerised for quick and efficient dissemination among users. Over 50 delegates participated in the workshop.

During the discussions, four objectives were specified. Firstly, to review the present system of collection, collation, analysis and dissemination of data on marine living resources in the country.

Secondly, to identify data requirements of research and development planning and other user sectors.

Thirdly, to standardise proforma for collection of data from the Artisanal and Mechanised Sector, Exploratory and Research Vessels and also from Culture Fisheries, and finally, to review and develop a computerised system for rapid dissemination of information for those who need it.

The workshop was held in 7 sessions. The first session was the opening session, presided over Dr. E. G. Silas, Director, CMFRI. Mr. T. Jacob, Scientist, CMFRI, Cochin welcomed the gathering. In his opening remarks Dr. Silas emphasised the need for the standardisation of the data collection system adopted both by CMFRI and the various state fisheries departments. He appraised the participants that CMFRI was nominated by the Planning Commission to develop the national data for marine fisheries with a computerised information system and in this context to conduct an all India workshop. The task before the workshop therefore he said, was to develop suitable proformae for use by various categories of fishing vessels. Based on the data collected in these proformae computerisation was to be done. Pointing out that all the maritime states had been involved in this task, it had to be determined what kind of coordination was required to achieve results.

DISPARITIES IN DATA

Session II was devoted to discussions on the present status of marine living resources statistics in India. Mr. V. Ramamurthy, Commissioner of Statistics, Tamilnadu, chaired the session. Mr. T. Jacob, presented a paper on the present status of marine fisheries statistics in India. There was a lively discussion in regard to disparities between the data collected at present by CMFRI and the maritime state fisheries departments. There was a thorough appraisal of the programmes followed by the various states and CMFRI. While CMFRI had standardised forms, with the exception of a few states such as Maharashtra no other state had adopted standardised forms. The point that arose was as to why the

various state governments could not follow the same system adopted by CMFRI. There was no satisfactory answer from the representatives of the maritime states. It was agreed that the collection of data by the maritime states was limited to certain areas. If the CMFRI system was followed by the states there would be uniformity. However, it was pointed out that, to follow the CMFRI system, additional expenditure had to be incurred. Some of the representatives of the state fisheries departments enquired whether CMFRI would met the additional expenditure.

SUPPLY OF METEOROLOGICAL INSTRUMENTS

Session III was presided over by Mr. P. K. Kumar Das, Director of fisheries, Kerala. The subject covered was identification of data requirements of user sectors and over-view of the proformae. The high light of the session was that the representative of the meteorological department had indicated that the meteorological department would provide certain instruments for use on fishing vessels for collection of environmental data. The data requirements for the users mostly related to the identification of, viable fishing grounds, fishery composition in various grounds identified, etc.

SCIENTISTS ON CHARTERED VESSELS

Session IV, presided over by Mr. S.C. Hota, Director of Fisheries, Orissa, dealt with operations of larger fishing vessels within the exclusive economic zone. The discussions mostly revolved around operation of fishing vessels on charter. Mr. D.B. Lal, Asst. Commissioner from the fisheries division of Union Department of Agriculture explained the various terms and conditions governing charters.

Commodore KMV Nair pointed out that there was practically no monitoring of the operation of chartered vessels. On several vessels Indian crew were not posted. The positions of the vessels also were not being reported according to rules.

Mr. Sathiarajan, Director IFP clarified that Indian crew had been posted on the chartered vessels and the vessels were also giving information about their positions. It however came out sharply during the discussion that no scientist had been posted so far on any of the chartered vessels as required. It was mentioned on behalf of CMFRI that arrangements in this regard would be made soon.

Permission from ICAR was awaited. It was suggested that the chartered vessels should furnish the required data in the forms as standardised at the workshop.

Session V, under the chairmanship of Commodore KMV Nair, dealt with the reports of the three working groups set up to consider various matters relating to (a) larger trawlers, (b) mechanised boats and (c) non-mechanised boats. The working groups also scrutinised various draft proformae relating to respective subjects. At the session, the various suggestions made by the working groups were discussed and recommendations concerning the final form of proformae were arrived at.

RECONCILED DATA

Session VI, was chaired by Mr. C. Vijay Ranchen, Commissioner of Fisheries, Gujarat. The subject covered was "Acquisition and dissemination of data on marine living resources of Indian Seas". It was agreed at the session that CMFRI's data collection system may be adopted by all, in order to avoid clashes between the data collected by CMFRI and State Fisheries Departments. There was an agreement that there should

not be two different sets of data. It was also agreed that representatives of CMFRI would go to the various states every year to discuss, reconcile and finalise one set of data. Only through this system, it was felt, that the present confusion could be resolved.

Mr. G. Venkataraman, Scientist, CMFRI read a paper on acquisition and dissemination of data on marine living resources of Indian seas by CMFRI. Another paper was also read by Dr. S. S. Pillai, Joint Director, IASRI, New Delhi on problems and prospects in establishing marine fisheries information system.

RECOMMENDATIONS

The plenary session was held on 23 October. At this session there was a suggestion that a coordination committee may be set up to ensure the presentation of data in a form devoid of confusion. It was however felt that there would be need for additional finances, if the committee was to function effectively. There was also a suggestion that there should be a suitable legislation to force the operators of larger fishing vessels to provide complete data in time. This suggestion however was opposed by Mr. Vijay Ranchen on the ground that if force was used, the operators were likely to give wrong data. The main recommendations of the workshop, as finalised, were as follows:

1. The CMFRI should immediately strengthen and expand its fishery data centre as a centralised National Marine Living Resources Data Centre (NMLRDC). This centre should be responsible for acquiring, processing, analysing and storing of data and disseminating the information on the marine living resources and related aspects.

2. An expert committee to guide the modalities of functioning and

to foster linkages with the various organisations in the initial stages may be constituted for a period of 2 years by the Union Department of Agriculture. This expert committee, which may be set up immediately, may comprise of members representing the states, central government organisations, ICAR, and public and private sector organisations, with the Director, CMFRI as convener. This committee may meet periodically and discuss the progress in the field and provide guide lines and advice for an effective and functional system for resources data collection and dissemination and information.

3. The state departments collecting marine fisheries statistics be strengthened with adequate administrative, technical and financial support so as to ensure coverage of atleast 5% of landing centre-days for data collection and their further analysis.

4. A system of data collection based on tested statistical design developed by CMFRI be followed by all the states. The data may be recorded and maintained in the accepted proformae drawn up for the purpose at this workshop.

5. The field staff in the state departments engaged in data collection may be periodically trained in the tested data collection system and the CMFRI may arrange and provide such training to the desired staff.

6. The concerned divisions of CMFRI may be strengthened to achieve a coverage of 5% of landing centre-days by the end of the 6th Five Year Plan.

7. Estimate brought out after consultation with the states may be accepted as the national estimate. Such estimate may be made available to the users in the shortest possible time.

8. All the parties engaged in fishing with larger vessels shall furnish the data on the exploitation to the NMLRDC at CMFRI. The fisheries division in the department of agriculture may take appropriate measures to ensure that all the larger fishing vessels operated by the industry, government, public sector, individual entrepreneurs, chartered vessels and those operating under bilateral and multilateral agreements furnish the data to the centre.

9. All the vessels engaged in fishing activities should record data in the prescribed proformae drawn up for different types of vessels and accepted in the workshop and supply the same to the NMLRDC immediately on conclusion of each voyage. The NMLRDC should make effective arrangements for supply of the required proformae to fishing organisations.

Indian waters abound in fish and Britannia has entered fishing as part of the national policy to organise a more scientific exploitation of resources in future. Catches are landed in sea fresh condition and speedily processed to preserve the natural product quality.

The Britannia fleet of 6 trawlers includes two modern 23 metre steel vessels imported from Mexico. It is proposed to augment the fleet in a phased manner, and possibilities of entering the field of deep-sea fishing are being explored currently.

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10. The CMFRI may immediately be equipped with appropriate electronic computing system to facilitate processing and retrieval of information.

11. Codes should be used to ensure confidentiality of the data furnished by the various operators.

12. The data centre should develop an effective and functional system of disseminating the information periodically and provide consultancy services to all sectors.

13. The Indian meteorological department may provide instruments

to larger fishing vessels together with necessary advice and specialised services.

14. The NMLRDC, besides collecting data on marine fisheries may also collect and analyse the data on coastal aquaculture, its economics, and social impact.

15. All data information pertaining to resources, exploitation and mortalities due to strandings and incidental catches in fishing operations of endangered marine mammals and turtles be collected and made available to the data centre for analysis and action.

(e) "licence" means a licence granted under section 4;

(f) "permit" means a permit granted under section 5 or under section 8, as the case may be;

(g) "Schedule" means Schedule to these rules;

(h) Words and expressions used but not defined in these rules but defined in the Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act, 1981 (42 of 1981) shall have the meanings respectively assigned to them in that Act.

Latest Rules Governing Charters

MINISTRY OF AGRICULTURE

(Department of Agriculture and Cooperation)

NOTIFICATION

New Delhi, the 26th August, 1982

G.S.R. 619(E).- In exercise of the powers conferred by section 25 of the Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act, 1981 (42 of 1981), the Central Government hereby make the following rules, namely:

1. Short title and commencement.—(1) These rules may be called the Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Rules, 1982.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. Definitions.-- In these rules, unless the context otherwise requires:-

(a) "Act 55 means the Maritime Zones of India (Regulation of Fishing by Foreign Vessels Act, 1981 (42 of 1981);

(b) "crew" includes the team of technical, semi technical and non-technical members associated with the operation of the fishing vessels;

(c) "flag state" in relation to a foreign vessel meant the State in which the vessel is registered or, where the vessel is not registered, the State whose flag the vessel is entitled to fly;

(d) "Form" means a Form annexed to these rules;

3. Licences.-- (1) Every owner of a foreign vessel or any other person described in section 4, who intends to use such vessel for fishing within any maritime zone of India, shall make an application in Form A to the Central Government. This form shall include the following information:--

(a) the name and description of the vessel, its equipment and complement;

(b) the flag state and home port of the vessel;

(c) the name and address of the owner and master of the vessel and, where applicable, its character;

(d) the side number of the vessel, the radio frequencies and call sign;

(e) a description of the proposed purpose and the period for which the licence is required;

(f) the name and address of a person resident in India having a permanent office or establishment in India who is authorised by the owner of the vessel to represent

him for the purpose of providing liaison with the Government of India; and

(g) any information required by the Central Government or by an officer designated by it to grant a licence in any case where, in its opinion the information furnished by the applicant requires clarification or amplification.

(2) Every application referred to in sub-rule (1) shall be made not less than thirty days prior to the first day on which the licence is required;

(3) Every such application shall be accompanied by a fee of rupees five hundred which shall not be refundable.

(4) The Central Government or an officer designated by it may, on receipt of an application, after making such enquiry as may be relevant, grant a licence in Form B for all or any of the following purposes, namely:—

(i) to engage in commercial fishing;

(ii) to tranship or to take on board any fish, outfit or supplies while at sea;

(iii) to process fish at sea;

(iv) to transport fish from fishing grounds;

(v) to land fish or fish products at an Indian port;

(vi) to purchase or obtain bait, outfits, provisions or supplies (including fuel) at an Indian port;

(vii) to effect repairs at an Indian port;

4. Validity of Licence: (1) Every licence shall.—

(a) be issued in original duplicates; and authenticated copies

shall be distributed to enforcement and other concerned authorities;

(b) apply only to the foreign vessel described in the licence and, where applicable, to the crew of that vessel; and

(c) be valid for the period specified in the licence.

(2) The disposition of the duplicates referred to in clause (a) of sub-rule (1) shall be as follows:—

(a) one licence shall be for the use of the licensee, and

(b) one licence shall be retained by the Central Government.

5. Terms and conditions of licence.—(1) Every licence, shall be subject to the following terms and conditions namely:—

(a) the licensee shall pay to the Central Government an amount set out in the Schedule I for the purposes mentioned therein at the time of taking delivery of the licence;

(b) the master of the foreign vessel for which a licence is granted or a person acting on behalf of the master shall give twenty four hours prior notice to the authorised officer of —

(i) the estimated time of entry of the vessel into the maritime zone of India;

(ii) of the location of such entry; and

(iii) of the approximate schedule of activities to be conducted.

(c) the vessel and its crew shall engage only in the activities that are authorised by the licence;

(d) the activities authorised by the licence shall be carried out only at the time and in the areas

of the maritime zone of India or ports set out in the licence;

(e) the licensee shall ensure that foreign members of the crew are employed only after obtaining necessary clearance from the Central Government. The licensee shall further ensure that every subsequent change in the foreign members of the crew is made only after the clearance from the Central Government;

(f) the master of each foreign fishing vessel during fishing operations shall notify the authorised officer the following.—

(i) time and position of commencement of fishing;

(ii) the time and position of the temporary departure from the fishing grounds for the purpose of embarking or disembarking an observer or for a call at an Indian port or any other temporary departure from the grounds which will involve departure from any authorised fishing area but which does not include departure from seaward limit of the fishing area beyond the Exclusive Economic Zone of India;

(iii) the time and position of return to the fishing grounds following temporary departure described in sub-clause (ii) above;

(iv) the time and position of any shift in its fishing area;

(v) the time and position at which it will cease fishing and the leave the fishing area;

(g) the master of the vessel shall communicate the information, to be notified under clause (f), to the officer of the Coast Guard in Portblunder, Bombay, Cochin, Tuticorin, Madras, Vellore, Paradweep, Haldia or Port Blair, at least twenty four hours before

the commencement or cessation of fishing. He shall record in communication log, the Indian Standard Time and the contents of each communication made under this clause. All the communication shall be in English;

(h) where the fishing is authorised by the licence, —

(i) the crew of the vessel shall fish only for the stocks or groups of stocks described in the licence;

(ii) the crew of the vessel shall not catch any fish by a species, size or age set out in the licence as prohibited catches, that are covered under the Wild Life (Protection) Act, 1972 (53 of 1972) and where such fish are caught they shall be retained and preserved on board the vessel, accounted for in Form C and shall be surrendered at such places as may be directed by the authorised officer;

(iii) the quantities, of fish of any stock or group of stocks caught in any area of the maritime zone of India during the term of licence, or during any specified portion thereof, shall not exceed the quantities set out in the licence;

(iv) the crew of the vessel shall not discard any substantial quantities of fish of a stock or group of stocks caught in excess of the quantities set in the licence. Such quantities of stock or group of stocks shall be retained and preserved on board the vessel accounted for in Form D and shall be surrendered at such place as may be directed by the authorised officer;

(v) the crew of the vessel shall fish only by means of fishing equipment and gear of a kind set out in the licence; and

(vi) the master of the vessel shall cause written records to be main-

tained on a daily basis of the fishing effort and catch of the vessel and of any transhipment and other dispositions of the catch by quantities, species size and weight in Form E.

(i) where the transporting of fish from fishing grounds is authorised by the licence —

(i) Only the species and quantities of fish set out in the licence shall be taken on board the vessel for that purpose;

(ii) the fish may be taken on board only from vessel of a class set out in the licence; and

(iii) the master of the vessel shall cause written records to be maintained on a daily basis of the fish taken on board the vessel for transportation in Form F;

(j) where the processing of fish is authorised by the licence, the master of the vessel shall cause written records to be maintained on a daily basis of the processing operations carried out and of the species, quantity and the state of processing of the fish taken on board the vessel for that purpose in Form G;

(k) the vessel shall have on board at all time during the period it is in maritime zone of India, equipment and fishing gear, including communications equipment, described in the licence as 'required equipment'.

(l) the master of the vessel or a person acting on behalf of the master shall, when authorised by the licence to visit an Indian Port, notify the authority specified in the licence of the estimated time of entry of the vessel into that port not less than twenty four hours prior to that estimated time:

(m) where the vessel is in an area of the maritime zone of India and is not authorised by its licence to engage in fishing at that time in that area, all fishing gear on board the vessel shall be stowed in the manner specified in rule 14;

(n) the master of the vessel shall cause reports to be made of the position of the vessel in space and time, operational conditions, and the nature of fishing including, where applicable, its catch statistics, and any transhipments or other dispositions of its catch, at such times, to such persons and by such means as are set out in the licence.

(o) where the Central Government requires the vessel to carry out, from time to time, a programme of sampling, observation or research in connection with fisheries in the maritime zone of India, the master shall comply with instructions issued to him by the Government in respect of that programme;

(p) the master of the vessel shall, where required by the Central Government or an officer authorised in this behalf permit a technical observer or observers designated in writing by that Government to go on board and remain on board, at a time and for a period specified in that behalf, for the purpose of recording scientific data and observations or taking samples and records or any other purpose specified in the order;

(q) the master of the vessel shall take all reasonable precautions to ensure the safety of any authorised officer or technical observer boarding or leaving the vessel at sea including the observance of practice of good seamanship and, where necessary, the placing of a boarding ladder

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of good quality and design and safety line over the side of the vessel;

(r) where an authorised officer or technical observer is on board the vessel for a period of more than four hours, the master of the vessel shall provide the authorised officer or technical observer with suitable food and accommodation;

(s) the master of the vessel shall,

(i) at the request of an authorised officer or technical observer, arrange for that officer or observer to send or receive messages by means of communication facilities on board the vessel;

(ii) provide all reasonable assistance in his power to enable an authorised officer or technical observer to carry out his duties and functions, and to the use of vessel's navigation equipment and personnel as necessary to determine the vessel's position;

(t) the master of the vessel shall, at any time, while within the maritime zone of India, at the request of an authorised officer, proceed forthwith for inspection to a place at sea and to a port as may be specified by that officer;

(u) the master of the vessel, upon being approached by an authorised officer in a vessel or ship or in an aircraft, shall immediately comply with any directions given to him by such authorised officer. For this purpose, the International Code of Signals shall be used;

(v) the vessel shall, at all time while within the maritime zone of India.—

(i) fly the flag of the flag state;

(ii) display in a place that is clearly visible both from the air and from sea level the letters and numbers identifying the vessel as set out in its licence, in white markings of at least one metre in height in the case of a vessel whose overall length exceeds twenty metres or one half metre in height in any other case, on a black background, and where the markings are painted, the paint work shall be maintained in good condition so that the markings are clearly legible at all times;

(w) where the vessel is in the maritime zone of India, the master of the vessel or a person acting on behalf of the master shall notify the Central Government of the estimated time of departure from those waters not less than seventy two hours prior to that estimated time;

(x) the licensee shall, when required to do so, make arrangements for training of Indian crew and personnel on board the vessels;

(2) the licensee shall be bound by all or any of the terms and conditions mentioned in sub-rule (1) and such additional conditions or restrictions as may be specified in the licence.

6. Permits: (1) Every Indian citizen and person described in section 5 who intends to use any foreign vessel for fishing within any maritime zone of India shall make an application to the Central Government for a permit.

(2) Every application referred to in sub-rule (1) shall be in Form H and shall be made not less than thirty days prior to the first day on which the permit is required.

(3) Every such application shall be accompanied by a fee of

rupees five hundred which shall not be refundable.

(4) The Central Government or an officer designated by it may on receipt of an application after making such enquiry as may be relevant, grant a permit in Form I for all or any of the purposes mentioned in sub-rule (4) of rule 3 of these rules.

7. Validity of permit—(1) Every permit shall,

(a) be issued in original duplicates and authenticated copies are to be distributed to enforcement and other connected authorities.

(b) be valid for a period as may be specified in the permit and in no case exceed more than five years. (2) The disposition of the duplicates referred to in clause (a) of sub-rule (1) shall be as follows;

(a) one permit shall be for the use of the permit holder; and

(b) one permit shall be retained by the Central Government.

8. Terms and conditions of permit:

(1) Every permit shall be subject to the following terms and conditions, namely:—

(a) the permit holder (hereinafter referred to as the charterer in this rule) shall pay to the Central Government an amount of Rupees ten thousand per vessel per year at the time of taking delivery of the permit;

(b) the charterer shall have the requisite managerial personnel who possess the necessary experience of fishing;

(c) the charterer shall give an undertaking in the form of bank guarantee, before the commencement of the charter, of an amount to be decided by the

Central Government in each case to the Central Government that he shall purchase required number of vessels and put them in fishing operation in the Exclusive Economic Zone of India before the end of the stipulated period specified in the Schedule II.

(d) the charterer shall ensure that at least twenty per cent of the crew are Indian citizens and are posted as under studies to the foreign skipper, the engineer and to the other operational crew and that they shall be kept in readiness to embark on the chartered vessel at the time of inspection of the vessel by the authorised officer and shall remain on board the vessel throughout the charter period.

(e) the charterer shall ensure that the charter party provides for the settlement of disputes between the parties by arbitration in India.

(f) the Central Government may post scientist observer on board each of the chartered vessel; the charterer shall ensure that the Indian scientists and observers, when so directed by the Central Government are permitted on board the chartered vessel for collection and examination of such data and material as may be required by that Government and shall see that such scientists and observers are provided proper food and accommodation on board the vessel by the master of the vessel;

(g) the charterer shall furnish to the Central Government valuation and sea worthiness certificates for the chartered vessel from an appropriate authority of its flag state and also furnish a copy thereof to the Director General of Shipping, Bombay;

(h) the charterer shall cause to be furnished to the Central Government the necessary certificates to the effect that the chartered vessel meets with the requirements in respect of safety of vessels and crew as per the provisions of the Merchant Shipping Act, 1958 (44 of 1958);

(i) The charterer shall ensure that. —

(i) no fishing is done for the protected species which are covered under the Wild Life (Protection) Act, 1972 (53 of 1972);

(ii) such protected species, if caught are immediately returned to water alive, if possible, and if not they shall be retained and preserved on board the vessel and accounted for in Form C and shall be surrendered at such place as may be directed by the authorised officer;

(j) the charterer shall not undertake shrimping operations for exploitation of coastal shrimps;

(k) where the charterer is a company the paid up share capital of the company shall not be less than rupees five lakhs during the charter period;

(l) the charterer shall not pay any marketing commission without the prior approval of the Central Government;

(m) the charterer shall ensure that the chartered vessel reports to the authorised officer before and after every fishing voyage and delivers the copy of the permit in its possession to the charterer before every departure to the foreign port;

(n) the charterer shall ensure that the foreign members of the crew on the chartered vessel

are employed only after obtaining necessary clearance from the Central Government.

(o) the charterer shall further ensure that every subsequent change in the foreign members of the crew is made only after the clearance from the Central Government;

(p) the charterer shall furnish to the Central Government voyage-wise statement of fish catch and exports from the chartered vessels with all the necessary details as set out in Form J;

(2) The charterer shall be bound by.—

(i) all or any of the terms and conditions mentioned in sub-rule (1);

(ii) all or any of the terms and conditions applicable to the licence except condition prescribed in clause (a) of sub-rule (1) of rule 5, and

(iii) such additional conditions or restrictions as may be specified in the permit.

9. Display of licence or permit on board the vessel. — (1) Subject to sub-rule (2), a copy of the licence or permit, duly attested by the issuing authority, shall be kept on board the foreign vessel described in the licence or permit while that vessel is in the maritime zone of India and shall be produced for examination by an authorised officer at his request.

(2) Every foreign vessel described in the licence or permit may enter in the maritime zone of India and proceed directly to an Indian port for the purpose of obtaining a copy of the licence or permit if—

(a) all fishing gear on board the vessel is stowed in the manner specified in rule 14.

(b) the master of the vessel complies with any directions given to him by an authorised officer.

10. Damage to Indian Vessels prohibited.—No foreign vessel fishing in the maritime zone of India under the licence or a permit granted under these rules shall cause any damage either wilfully or through gross negligence to any fishing vessel, fishing stakes, fishing gear, fishing net or other fishing appliances owned or in possession of an Indian citizen;

11. Commencement of fishing operations.-- No foreign vessel fishing in the maritime zone of India under the licence or the permit granted under these rules shall commence fishing operations without the clearance from the Coast Guards.

12. Fishing in territorial waters prohibited.—No foreign vessel shall undertake fishing operations within the territorial waters of India, unless otherwise specifically permitted for any specialised type of fishing and shall be subject to any other restrictions that may be specified in the licence or permit.

13. Prohibition to carry any explosives, poisonous or noxious substances.-- (1) No foreign vessel or any person shall carry or have in its possession or control any explosives, poisonous or other noxious substances or apparatus fitted for or capable of utilising an electric current, with the intention of using such explosives, poisonous or other noxious substances or apparatus for killing, stunning, disabling or catching fish. Any explosives, poisonous or other noxious substance found on board any vessel or in possession of any person, shall be presumed, unless the contrary is proved, to be intended for the use specified above.

(2) No foreign vessel or any person shall attempt to destroy or abandon any fishing gear, fishing net or other fishing appliances,

explosives, poisonous or other noxious substances or any other object or thing with the intention to avoid their detection or seizure.

14. Entry into maritime zone of India without licence/permit.--

(1) Subject to sub-rule (2), a foreign vessel may, without the authority of a licence or a permit enter the maritime zone of India for the purpose of passing through such waters in the course of a voyage to a destination outside the maritime zone of India.

(2) A foreign vessel that has entered in the maritime zone of India without the authority of a licence or a permit shall comply with the following conditions while in the maritime zone of India.—

(a) all fishing gear on board the vessel shall be stowed below deck or otherwise removed from the place where it is normally used for fishing and placed where it is not readily available for fishing.

(b) all fishing nets, fishing lines, hooks, jigs, trawl boards, weights and floats shall be disconnected from their towing, connecting or hauling wires, ropes or rigid frames;

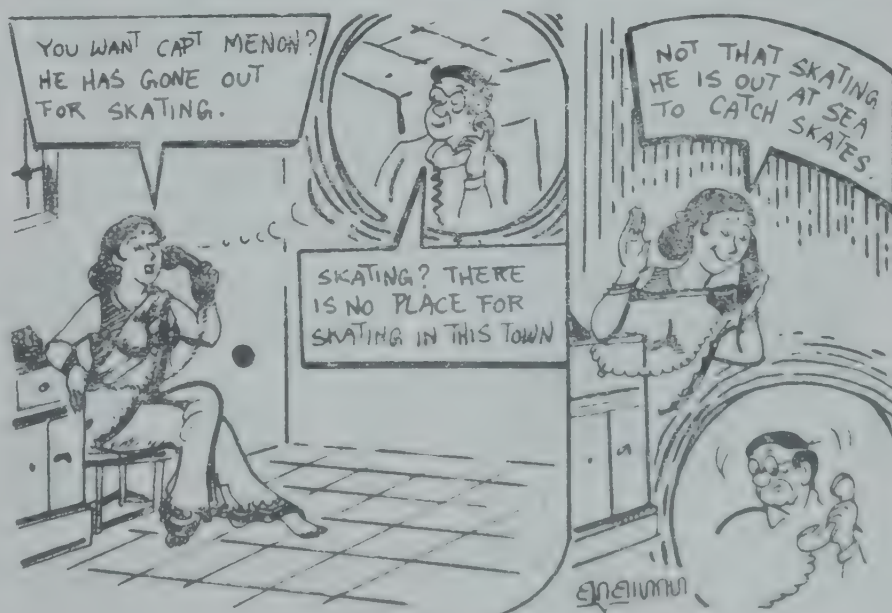
(c) the master of the vessel shall comply with any directions given to him by an authorised officer; and

(d) where an authorised officer requests information respecting the name, flag state, location, route or destination of the vessel, or the circumstances under which it entered maritime zone of India, the master of the vessel shall promptly convey the information to the officer.

15. Fishing for scientific research, investigation, etc.-- Where a foreign vessel is to be used for fishing within any maritime zone of India for the purpose of carrying out any scientific research or investigation or for any experimental fishing, the Central Government may grant a permit to such foreign vessel under section 8 of the Act. Where such a permission is granted, the Central Government may apply all or any of the terms and conditions prescribed for the licence under rule 5 or for permit under rule 8, as well as such additional conditions as may be specified.

16. Contravention of conditions of Licence, permits of rules.-- Contravention of any of the provisions of these rules shall be punishable with fine, which may extend to Rs. 50,000 without prejudice to the penalties which may be awarded under the Act.

S.P. JAKHANWAL, Jt. Secretary.

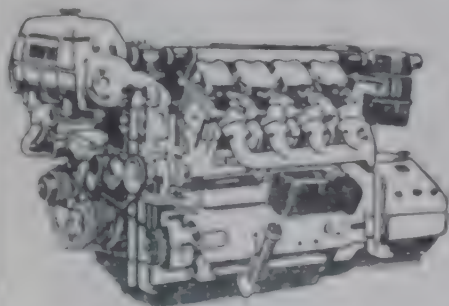


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SCHEDULE I

See rule 5(1) (a)

Amount payable under rule 5 (1) (a)

FORM A

See rule 3(1)

Form of Application of Licence

Purpose of licence	Amount payable
1. Fishing by squid jigging	Rs. 1,000/- per tonne of fish the vessel is permitted by the terms and conditions of the licence.
2. Fishing by trawling	Rs. 2,000/- per tonne of fish the vessel is permitted by the terms and conditions of the licence.
3. Fishing by long lining/ gill netting.	Rs. 1,500/- per tonne of fish the vessel is permitted by the terms and conditions of the licence.
4. Fishing for tuna by long lining/purse-seining/pole and line fishing.	Rs. 1,000/- per tonne of fish the vessel is permitted by the terms and conditions of the licence.
5. Transporting of fish.	Rs. 500/- per tonne of fish carrying capacity of the vessel for each voyage.
6. For any other purpose mentioned in rule 3(4).	Rs. 200/- per gross registered tonne of the craft for each voyage.

To

The Secretary to the Government of India, Department of Agriculture and Cooperation
Ministry of Agriculture,
Krishi Bhavan,
NEW DELHI - 110001
INDIA

Sir,

I hereby apply for a licence under section 4 of the Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act, 1981, in respect of which the following particulars are furnished:

1. Name of the applicant and postal address
2. Status of the applicant and his financial position (if the applicant is a company, full details thereof).

3. Present activities of the applicant including the specific activities relating to fishing.

4. Details of fishing vessels/fish processing units/ export/import of fish as in the past three years.

5. Details of the proposed fishing project indicating particulars on fishing vessels, number of vessels to be operated, anticipated fish catch, project economics, processing and marketing arrangements, area and base of operation, etc.

6. Description of the vessel, equipment and complements:-
(a) Name of the Vessel, (b) Flag state and home port of Vessel.
(c) Country and port of registration.
(d) Registration number.
(e) Radio call sign/signal letter/radio frequencies.
(f) Name of owner and master

SCHEDULE II

See rule 8(1) (c)

Schedule of purchase of vessels

No. of vessels/ or pair of vessels	No. of months from the beginning of the charter operation when obligatory purchase and fishing operation become due.				
	First vessel or first pair of vessel	Second vessel or second pair of vessel	Third vessel or third pair of vessel	Fourth vessel or fourth pair of vessel	Fifth vessel or fifth pair of vessel
1	18	—	—	—	—
2	18	30	—	—	—
3	18	24	33	—	—
4	18	24	33	42	—
5	18	24	33	42	51

of the vessel. (g) Nationality and address of owner and master. (h) Purpose of vessel (kind of vessel). (i) Kind of vessel's hull. (j) Vessel's year (date of construction) and date of launching. (k) Number of deck. (l) Number of mast. (m) Registered length. (n) Registered breadth. (o) Registered depth (draft). (p) Gross tonnage and net tonnage. (q) Fish Hold capacity and Refrigeration Capacity. (r) Kind of main engine, name and place of main engine manufactured. (s) Rated H.P. of main engine. (t) Kind of propeller. (u) Class of equipments (list). (v) Certified crew capacity. (w) Service limitations of the vessel. (x) Name and address of the ship builder. (y) Value of the vessel. (z) Any other remarks.

7. The electrical specifications of the craft and its equipment.

8. Description of the proposed fishing operations:—

(a) the species to be fished; (b) the method of fishing and type and dimensions of gear to be used and mesh sizes of different parts of fishing net. (c) area/areas to be fished; (d) the amount of fish to be caught; (e) the period of time for which licence is sought; (f) the place in which the fish is to be landed and/or processed. (g) a description of support operations and the name and licence number (if any) of fishing vessels in support of which related activities are to be carried out.

9. Name and address of the person resident in India appointed by the owner to represent him in all dealings with the Government and evidence of the extent to which he is authorised to undertake legal and financial obligations on behalf of the owner.

10. Plans for the use of Indian facilities in the support, provisioning and maintenance of vessels.

11. Such other information as may be required by the Government of India.

Dated Day of of the year

Signature of the applicant

FORM B See rule 3(4)

GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE
Department of Agriculture and
Cooperation
NEW DELHI

No.

Dated

Licence to Fish in the Exclusive
Economic Zone of India

This Licence is granted in
pursuant to section 4 of the
Maritime Zones of India (Regulation
of Fishing by Foreign Vessels)
Act, 1981 (42 of 1981).

2. The foreign fishing vessel
described hereunder is hereby
licensed for the purposes specified
in paragraph 3 of this licence
and in accordance with the
conditions set out in paragraphs 6
and 8 of this licence and shall
be subject to all the Indian laws
that apply to the vessels in the
Maritime Zones of India.

Description of the Vessel

Name of the vessel
Name of the owner
Type of vessel
Country of registration/Flag State...
Registration Number
Overall length
Gross tonnage
International radio call sign and
radio frequency
Name and address of the master

3. The purposes for which the
vessel may be used:

4. Area

5. Period

6. The licence shall be bound by
the terms and conditions
specified in rule 5 and the
additional conditions/restriction
specified in paragraph 8.

7. Exemptions in the terms and
conditions if any, :

8. Additional conditions.

9. Name of the foreign crew.

10. List of Required Equipments.

11. Subject to the provisions of the
Maritime Zones of India
(Regulation of Fishing by
Foreign Vessels) Rules, 1982,
this licence is valid from the....
day of 198
in the day of 198 ..

12. This licence is not transferable.

Secretary to the Govt. of India

Date

FORM C See rule 5(1) (h) (ii)

Data on catch of prohibited
fish species

1. Name and address of fishing
company.

2. Particulars of fishing vessels.
Name:
Size:
Horse Power of Main Engine:
Base of operation:

3. Licence Number and period of
validity.

4. Description of fishing operations
authorised in the licence.

5. Details of fishing gear used

- (a) Length of headline
- (b) Greatest depth
- (c) Mesh size

6. Description of the catch.

- Col. No. 1 Sl. No.
Col. No. 2 Location of the vessel
Latitude.
Col. No. 3 Location of the vessel
Longitude.
Col. No. 4 Date and Time.
Col. No. 5 Gear in operation.
Col. No. 6 Fishing Zone.
Col. No. 7 Depth (Metre).

Col. No. 8 Species (prohibited).
Col. No. 9 Average Length (CM).
Col. No. 10 Average Weight (Kg.)
Col. No. 11 Number.

7. Place of surrendering the catch.

8. Conditions of the catch at the time of surrendering.

9. Comments of the Master/Skipper.

Signature of owner/owner's
representatives

FORM D

See rule 5(1) (h) (iv)

Data on quantity of fish caught
in excess of permitted quantum

1. Name and address of the fishing
company.

2. Particulars of fishing vessels.

Name:

Size:

Horse Power of Main Engine:

Base of Operation:

3. Licence Number and period of
validity.

4. Description of fishing operations
authorised in the licence.

5. Species-wise quantity of fish
permitted in the licence (quota).

6. Details of catch particulars.

Col. No. 1 No.

Col. No. 2 Location of fishing vessel.

Col. No. 3 Date & Time.

Col. No. 4 Fishing Zone

Col. No. 5 Length, Depth and mesh
size of fishing gear.

Col. No. 6 Species caught.

Col. No. 7 Raw weight (kg.)

Col. No. 8 Processed products
prepared on board the vessel if any.

Col. No. 9 Weight (kg.)

Col. No. 10 Total catch (kg.)

7. Details of excess catch.

Col. No. 1 Serial No.

Col. No. 2 Location of fishing vessel.

Col. No. 3 Date & Time.

Col. No. 4 Fishing Zone

Col. No. 5 Depth (metres).

Col. No. 6 Species caught in excess.

Col. No. 7 Average Weight (kg.)

Col. No. 8 Average length (cm).

Col. No. 9 Condition of fish.

Col. No. 10 Reasons for excess catch.

8. Particulars of excess catch
surrendered.

Col. No. 1 Species.

Col. No. 2 Weight (Kg.)

Col. No. 3 Place of surrendering.

Col. No. 4 Authority to whom
surrendered.

9. Remarks of Master/Skipper.
Signature of owner/owner's
representatives

FORM E

See Rule 5(1) (b) (vi)
Daily Cumulative Catch Log

1. Name and address of the fishing
company:

2. Particulars of fishing vessels:

Name:

Size:

Horse Power of Main Engine:

Base of operation:

3. Licence Number and period of
validity:

4. Description of fishing operations
authorised:

5. Species-wise catch of fish and
quantity permitted in the licence.

6. Fishing Area.

7. Date of entry to Indian
Exclusive Economic Zone.

Col. No. 1 Serial No.

Col. No. 2 Vessel number.

Col. No. 3 Position.

Col. No. 4 Date & Time.

Col. No. 5 Time of Shooting gear.

Col. No. 6 Time of hauling gear.

Col. No. 7 Hours of fishing

Col. No. 8 Depth (Metre).

Col. No. 9 Type of gear.

Col. No. 10 Mesh Size.

Col. No. 11 Species caught.

Col. No. 12 Quantity

Col. No. 13 Disposition.

Col. No. 14 Cumulative total.

Col. No. 15 Cumulative disposition.

Col. No. 16 Details of transhipment.

8. Details of Disposition of catch.

ITEM	QUANTITY (Kg.)
(a) Consumption:	
(b) Fish gutted:	
(c) Head on (or off):	
(d) Filleted:	
(e) Frozen:	
(f) Canned:	
(g) Fish meal:	
(h) Oil:	

Signature of owner/owner's
representative

**SHRIMP AS FRESH AS WHEN THEY LAND
ON DECK OF OUR TRAWLERS**

AND AS YOU WANT

**HEAD-LESS, SHELL-ON
PEELED AND DEVEINED,
PEELED AND UNDEVEINED, OR
COOKED AND FROZEN !**

**WE BELIEVE IN INTEGRATED
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A SHORT TIME WE ACQUIRED SIX FISHING
VESSELS, ESTABLISHED A MODERN
MARINE PRODUCTS PROCESSING PLANT AND
ALSO SET UP A WORKSHOP OF OUR OWN**

**OUR FROZEN SHRIMP, OWING TO ITS
SEA-FRESH FIRMNESS, FLAVOUR AND TASTE
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Nava Bharat Ferro Alloys Limited



MARINE PRODUCTS DIVISION

" Manganese House "

**Harbour Road, Visakhapatnam 530 001
Andhra Pradesh. INDIA.**

**Grams : NAFBAL. Phone : 66030 Telex : 0490-328
Regd. Office : Nava Bharat House, 6-3-654 Somajiguda
HYDERABAD 500 004 (INDIA)**

FORM F

See rule 5(1) (i) (iii)

Particulars of transshipment

1. Name and address of fishing company.
2. Particulars of fishing vessels.
Name:
Size:
Horse Power of main engine:
Base of operation:
3. Licence Number and period of validity:
4. Catch and Effort Data:
Col. No. 1 Area.
Col. No. 2 Species.
Col. No. 3 Number of days fished.
Col. No. 4 Catch (in Kg.)
Col. No. 5 Product from vessel.
5. Licence Number and side number of vessel receiving transshipment.
6. Position at the time of transshipment.
Latitude:
Longitude:
7. Date of message from vessel.
8. Species and quantities transferred.

- Col. No. 1 Species.
Col. No. 2 Gross weight (kg.)
Col. No. 3 Value.

Signature of licensee/his representatives

FORM G

See rule 5(1) (j)

Particulars of processing operations on board the vessel under Licence

1. Name and address of fishing company.

2. Particulars of fishing vessels.

Name:
Size:
Horse Power of main engine:
Base of operation:

3. Licence Number and period of validity.
4. Description of fishing operations authorised in licence.
5. Name of the port to be used as base.
6. Processing Machinery and Equipment.
Col. No. 1 Type.
Col. No. 2 Number of Units.
Col. No. 3 Specifications and daily capacity.
Col. No. 4 Percentage utilisation of capacity.
7. Storage and holding.

Col. No. 1 Nature of storage.
Col. No. 2 Number of species.
Col. No. 3 Dimensions/Volume of fish hold.

8. Processing details.

Col. No. 1 Species.
Col. No. 2 Area of Operation.
Col. No. 3 Date of operation.
Col. No. 4 Duration of operation
From To.
Col. No. 5 Catch particulars.
Col. No. 6 Products prepared on vessel & quantity (Kg.)

(Enter in this column, types of products processed on board the vessel by species, viz., fish gutted, head on (or off) filleted, salted, frozen, canned, meal & oil etc.)

9. Position and time of reporting.
Latitude:
Longitude:
Time:
Date:

Signature of owner/owner's representative

FORM H

See rule 6 (2)

Form of Application for 'Permit' Outline Details Required for Proposed Operations

1. Name of the applicant and postal address.
2. Whether the applicant is a registered company under the Companies Act, if so, furnish the following particulars:—
(a) Date and number of Registration and Place.
(b) Authorised, Subscribed and paid up share capital.
(c) Attach latest Balance-sheet.
(d) If the company comes under the provision of Monopolies and Restrictive Trade Practices Act, 1969 (54 of 1969), please state whether necessary clearance is available.
3. The foreign collaborator's name, address, Telephone number, Telex number and name of Bankers and their activities in India and in other countries.
4. Present activities of the applicant, if any.
(a) Specified activities undertaken.
(b) Details of fishing vessels/fish processing units and fish export made during the past three years.
(c) Name of all Directors/Chief Executive/Operations Manager/other employees of the Indian Company, their experience in marine fisheries indicating specified fields.
5. Details of the Project proposed to be taken up (enclose project report covering particulars on fishing vessels, anticipated fish production, processing and marketing organisation, management, including financial sources, economics of operation, area and base of operation, identity of

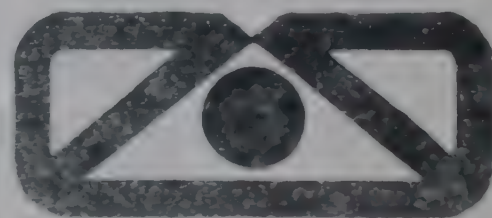
Our Modest Contribution to Indian Deep Sea Fishing Industry

AS AUTHORISED REPRESENTATIVES OF HOLLANDCRAFT, HOLLAND (GROUP OF 24 DUTCH SHIPYARDS) WE ACCOMPLISHED THE IMPORT OF FIRST BATCH OF FIVE COMBINATION TRAWLERS, PRESENTLY UNDER OPERATION FROM VISAKHAPATNAM. THE VESSELS ARE STURDY AND FITTED WITH WORLD'S BEST EQUIPMENT WHICH MAKES THEM DURABLE AND DEPENDABLE.

WE HAVE JOINED WITH WORLD LEADERS IN DEEP SEA FISHING VESSEL INDUSTRY ARRANGING COLLABORATIONS AND JOINT VENTURES AND IMPORTS OF FISHING VESSELS.

PLEASE CONTACT FOR FURTHER INFORMATION:

UniGeneral



38 Vaidhans, 11 Tolstoy Marg, New Delhi 110001 Tel : 44008, 44009 Telex : 001 2024 UNTX IN

INTERNATIONAL SUPPLIES AND SERVICES.

fishery resources to be exploited, catching methods, gear to be employed, etc.)

(a) Type of vessels, type of gear and number of vessels proposed to be chartered (Enclose detailed specifications and general arrangement drawings and also a full list of machinery and equipment, navigational lights, life saving appliances, fire fighting equipment, inventory items etc.)

(b) Description of the vessel, equipment and crew complement (Enclose certificate given by competent authorities regarding valuation and sea worthiness of the vessels):—

(i) Name of the vessel.

(ii) Flag state and home port of vessel.

(iii) Country and port of registration.

(iv) Registration number.

(v) Radio call sign/signal letter/radio frequencies.

(vi) Name of owner and master of the vessel.

(vii) Nationality and address of owner and master.

(viii) Purpose of vessel (kind of vessel).

(ix) Kind of Vessel's hull.

(x) Vessel year (date of construction and date of launching).

(xi) Number of deck.

(xii) Number of mast.

(xiii) Registered length.

(xiv) Registered breadth.

(xv) Registered depth (draft).

(xvi) Gross tonnage and net tonnage.

(xvii) Fish Hold capacity and refrigeration capacity.

(xviii) Kind of main engine, name and place of main engine manufactured.

(xix) Rated Horse Power of main engine.

(xx) Kind of propeller.

(xxi) Class of equipments (list).

(xxii) Certified crew capacity.

(xxiii) Service limitations of the vessel.

(xxiv) Name and address of the ship builder.

(xxv) Value of vessel.

(xxvi) Any other remarks.

(c) Number, classification and experience of foreign crew.

(d) Number and names of foreign personnel to be employed ashore.

(e) Enclose authenticated copy of the offer received from foreign collaborator.

6. Duration of charter.

7. Annual rate of charterage or charterage for entire duration.

8. Whether the charterer retains option to purchase vessels after the charter period and terms thereof.

9. Whether the foreign collaborator is willing to assist in export of catches, if so, the terms and conditions.

10. Arrangements for training of Indian-counterparts.

11. Statement of foreign exchange inflow anticipated (excluding payments in foreign exchange out of total earnings by way of exports) for the duration of charter.

12. Total income, total expenditure and net profit anticipated for the duration of charter.

13. Form of charter party proposed to be entered into.

14. Financial arrangements (Describe in details).

15. Proposals of shore establishment (if any).

(i) Intended location and description of any shore based plant.

(ii) Proposal for registration and date of completion of any shore based plant as a Registered Export Establishment.

(iii) Arrangements for processing catch.

(iv) Estimated annual output of the plant.

(v) Percentage of total catch to be processed and/or exported.

(vi) Export market and marketing arrangements for total catch.

DECLARATION

I/Weby this declaration subscribed by me/us pursuant to and in compliance with section 5 of the Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act, 1981, (42 of 1981), fully understand all the provisions of the said Act and Rules and orders issued thereunder and agree to abide by them.

I/We further declare that the particulars furnished in the above application are true to the best of my/our knowledge.

Signature of the applicant(s)

FORM I

See rule 6 (4)

GOVERNMENT OF INDIA

Ministry of Agriculture

Department of Agriculture & Cooperation
New Delhi

No.

Dated

Permit to Fish in the Exclusive Economic Zone of India

This permit is granted in pursuant to section 5 of the Maritime Zones of India (Regulation of Fishing in Foreign Vessels) Act 1981 (42 of 1981).

Combination trawler



This type of vessel is custom built in series and is specially designed for as well beam as stern trawling in tropical waters.

The result is a stable vessel with a large working deck area and easy to handle in all respects.

The hull is of the single chine form, giving a large fish hold, a spacious engineroom and a bigger accommodation under deck.

The hull is divided into six watertight compartments: forepeak, crew accommodation, engineroom, fish hold, fuel tanks and afterpeak/netstore.

Freezing of the catch is done by the brine tank on the main deck and by a blast freezer in the hold.

The propulsion installation consists of a Caterpillar marine diesel engine of 270 kW (365 hp) at 1800 rev/min, driving a fixed pitch propeller.

The three-drum fish winch is hydraulic driven. Two auxiliary engines drive a compressor for the freezing installation, generator and a bilge pump.

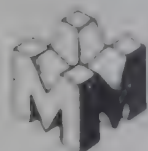
In the superstructure are provided a galley/messroom, two toilet/shower cabins, two double and two single cabins. In the forepart below deck an eight berth crew compartment.

Nautical and fishing equipment, comprise among others radar, radio installation, direction finder and echosounder.

The vessel obtained the classification Lloyd's  100 A1 "trawler" and Lloyd's Machinery Certificate (LMC).

Main particulars:

length overall	23.50 m
length between p.p.	21.00 m
breadth mld.	6.50 m
depth at side	3.40 m
draft (mean)	2.65 m
fish hold capacity	abt 70 m ³
fuel oil capacity	abt 40 m ³
fresh water capacity	abt 15 m ³



maaskant
machinefabrieken en dok mij.
(shipyard and repair)

Havenkade 14, Bruinisse, Holland
Phone 01113-1710, Telex 55342

Meester Snijderweg 40, Delta Haven, Stellendam, Holland
Phone 01879-1477, Telex 26695

schepbouwmaatschappij

DE HOOP

hardinxveld bv

(shipyard and repair)



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3370 AA Hardinxveld Giessendam
Holland
Phone 01846-3666 Telex 24302 Hobar

MEMBERS OF

NET AND CRAFT

HOLLAND CRAFT

Export promotion group

2. is hereby permitted to use the foreign fishing vessel under charter described hereunder for the purposes specified in paragraph 5 of this permit and in accordance with the conditions set out in paragraphs 8 and 10 of this permit and shall be subject to all the Indian laws that apply to the vessels in the Maritime Zone of India.

3. Description of the vessel:

- (i) Name of the vessel:
- (ii) Type of vessel:
- (iii) Country of Registration:
- (iv) Registration Number:
- (v) Overall length:
- (vi) Gross tonnage:
- (vii) International radio call sign and radio frequency:
- (viii) Name and address of the master:
- (ix) Name and address of the foreign collaborators.

4. Details of charters fee, mode of payment and any other stipulation.

5. The purposes for which the vessel may be used.

6. Base and area of operation.

7. Period of operation of the vessel.

8. The permit holder shall be bound by the terms and conditions specified in rule 8 and the additional conditions/restrictions specified in paragraph 10.

9. Exemptions in the terms and conditions, if any,

10. Additional conditions.

11. Names of foreign crew.

12. Subject to the provisions of the Maritime Zones of India (Regulation by Foreign Vessels) Rules, 1982, this permit is valid from the day of 193 to the day of 198 ..

13. This permit is not transferable.

Dated
Secretary of the Govt. of India

FORM J See rule 8(1) (p)

Voyage-wise Statement to be Furnished by the Charterer

1. Name and address of the Charterer.

2. Particulars of fishing vessels:

Name:
Size: Overall length:
Gross Registered Tonnage:
Horse Power of main engine:
Base of Operation:

3. Number of crew:

Foreign:
Indian:

4. Period of voyage:

- (i) Date of departure from foreign port.
- (ii) Date of entry into the Maritime Zone of India.
- (iii) Date of reporting at the base of operation.
- (iv) Period of fishing From To
- (v) Date of departure from the base of operation.
- (vi) Date of leaving the Maritime Zone of India.

5. Details of each fishing operation (for each haul).

- (i) Haul Number.
- (ii) Type and Size of Gear.
- (iii) Position Shooting Hauling
Latitude
Longitude
- (iv) Time
Shot
Hauled
- (v) Depth (meters)
- (vi) Total catch (in kilograms)
Main species caught)
Weight (kilograms)

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- etc.

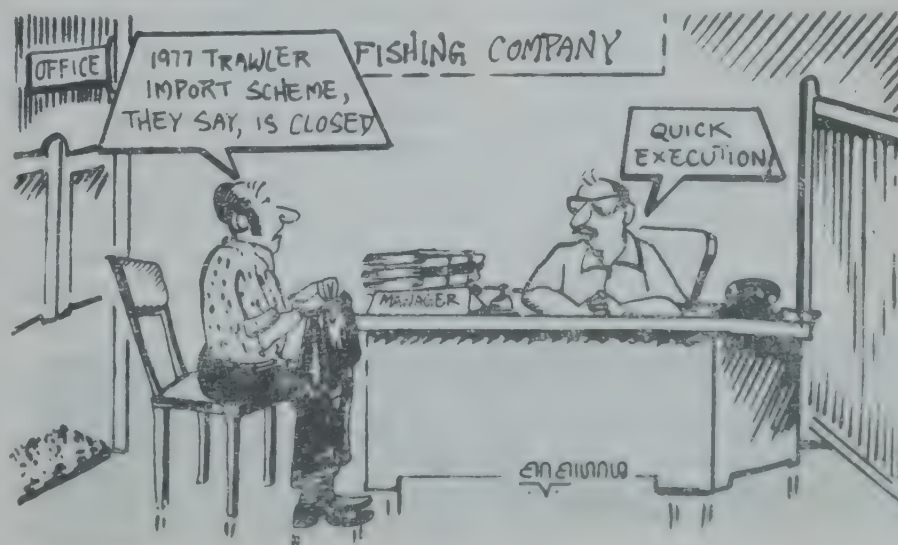
6. (i) Value declared at customs for the total catch and for each variety (in foreign currency).
(ii) Value realised on domestic marketing for each variety (in Indian rupees).

7. Quantity, value and country to which each item was exported.

3. Payment made to foreign collaborator:
In foreign exchange.
In Rupees.

9. Payment received from foreign collaborator:
In foreign exchange.
In Rupees.

Signature of the Charterer



Directors of Fisheries as Chameleons for Better Results — Says Kawatra

The Director of Fisheries, Punjab, Arbindo Kumar Kawatra, 57 years, looks more like a Major General than a Fisheries Chief. A person with a great care for detail, meticulous work, and strict discipline, under his stewardship, the development of fisheries in Punjab made major strides, particularly after the bifurcation of the composite state of Punjab into Punjab and Haryana.

Kawatra received his training as a stipendiary in the erstwhile Pepsu State in Inland Fisheries in 1949-50 at the Inland Fisheries Training Unit attached to the Central Inland Fisheries Research Institute, Barrackpore. He joined the Fisheries Department of Pepsu in 1952 as Fisheries Officer (Gazetted). In 1956 he became the Deputy Warden of Fisheries, Pepsu. Pepsu was merged with Punjab in the same year and he became Deputy Director of Fisheries in Punjab State in 1959. He was trained in Japan in Fishery Science in 1962, for 7½ months. He became the Director of Fisheries, Punjab in 1964. He has been continuing in this post since then.

Your editor interviewed Mr. Kawatra recently. The following details of the interview would be of interest to the readers:

Q. Has there been any increase in the budget allocation relating to fisheries development in the recent years?

A. In 1954, the annual fisheries budget in Punjab was Rs. 10 lakhs. By 1978, this was scaled down to Rs. 5 lakhs. I am glad to say that at present (1982-83) the budget allocation stands at Rs. 80 lakhs, of which Rs. 60 lakhs are for implementing plan schemes and the rest of for non-plan schemes. In the coming year the budget outlay will be Rs. 1 crore.

Q. What are the constraints in the way of bringing all suitable water areas in fish production?

A. Fish culture and fishing are both non-traditional activities in Punjab. Only in the recent years the activity is catching up owing to the efforts of the fisheries department. The progress could have been faster, but for the situation that the fishery rights in all ponds in the state are vested in the panchayats. Most of the panchayats are now aware that they can earn substantial amounts

by leasing out the fishery rights. They prefer to give them on lease to the highest bidder, who may or may not have adequate interest to undertake intensive fish culture. We are having difficulties in convincing the panchayats to give their ponds on lease even to the FFDAs. As several ponds have connections with the river canal system, they get stocked automatically and this is enough for the lessees. Most of them do not take requisite interest to adopt the culture technology.

The Department of panchayats says that they would give the panchayat ponds on lease only to the government and not to the FFDAs. The fisheries department has no control over the panchayat ponds. If the fishery rights in panchayat ponds are transferred to the fisheries department, the pace of development would be faster.

Q. Your government can certainly pass orders that all panchayat tanks should be given on lease to FFDAs or as recommended by the Director of Fisheries, subject to certain norms?

A. Earlier, in the Panchayat's Act there was no provision for leasing out the fishery rights of panchayat tanks. An amendment was later introduced. According to this the fishery rights can be given on lease only to the state government or to the government of India. Difficulties are therefore experienced in acquiring the lease of fishery rights

INTERVIEWS

en of FFDA will Yield

of panchayat ponds in favour of FFDA's. We have taken up the matter with the state government for a further suitable amendment.

Q. Is it not possible to prevail upon the riverine fishermen to take to pond culture by obtaining leases of fishery rights from panchayats? This may reduce pressure of fishing in rivers and at the same time pond fish culture can be promoted.

A. As I already mentioned, there is no tradition of fish culture in the state. Fishermen come seasonally from states such as U.P. and Bihar to conduct fishing in our rivers. They only want to earn money during the short period of their stay and they are not interested in any long term activity. It is not an easy job to induce them to take to culture fisheries.

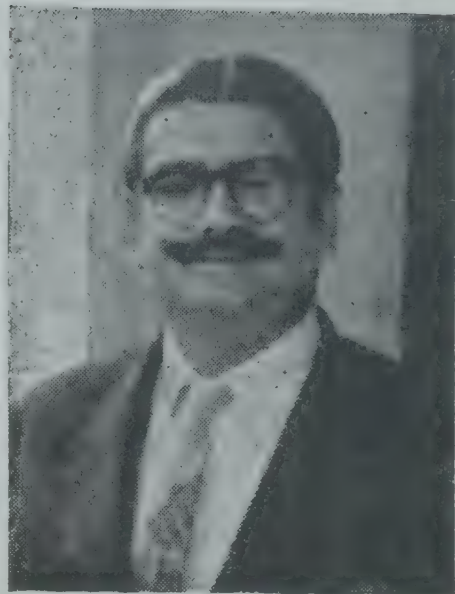
Q. What is the strategy followed for the development of inland fish culture and riverine fisheries?

A. Our strategy is to progressively bring all available pond areas under intensive fish culture. This is sought to be achieved through FFDA's and also by efforts in helping those interested in the activity. We have recognised that services have to be extended to prospective farmers by way of soil analysis etc. with a view to determining the suitability of the water areas they want to develop for fish culture. Accordingly we have set up mobile fisheries research laboratories one at Sangrur and one at Kapurthala.

These units cater to the requirements of the FFDA's and others. We may soon increase the number of these laboratories.

Availability of adequate quality seed is the key factor for the development of fish culture. Accordingly we have set up seven seed farms with an extent of nearly 16 ha. and also 11 fish seed nurseries, having 96 nursery ponds and 3 rearing ponds, 13 stocking ponds, and 6 cement cisterns. Our fish seed production has gone up considerably in the recent years and our present annual seed production is of the order of 36 lakhs. However we do not import any fish seed from outside although the FFDA at Jullundar procured some seed this year from Calcutta. In the 6th Plan we propose to set up six more seed farms and 11 small nursery units.

Training is an important aspect in the development of culture fisheries. We have therefore set up training centres attached to the fish seed farms at Vir Sikhargarh, Yahatnagar and Gurdaspur. We conduct 3 courses in a month for a duration of 9 days each for the benefit of both FFDA and non-FFDA farmers. Most of the officers in our department are trained. Every year we send 4 candidates for training at Inland Fisheries Training Unit, Barrackpore, sometimes one officer to Central Inland Fisheries Education, Bombay and 4 candidates to the regional Training Centre at Agra.



MR. A.K. KAWATRA

Regarding the development of riverine fisheries, our aim is to conserve these resources and maintain an equilibrium in fish population by permitting only judicious exploitation aimed at sustainable yield. We have set up a conservation division to enforce conservation measures. We are now enforcing closed season meticulously.

Stocking of riverine stretches is also part of our strategy. Under the Rupar World Bank Project (Dholba irrigation project) we are setting up a seed farm at Rupar (Rupnagar) in an area of 10 ha. at a cost of Rs. 7.5 lakhs. The aim is to produce 18 lakhs of fingerlings a year for stocking 37 km stretch of Sutlej river from Rupar headworks to Nangal headworks. 3 ponds at this farm have already been constructed. In the

second phase, it is proposed to construct another farm with an extent of 12 ha in Haryana village in Hoshiarpur district. It is expected that this farm will produce about 20 lakhs of fingerlings.

Under the Dholba project it is also proposed to convert about 17 chauras into small reservoirs to prevent flooding and also utilise the impounded areas for fish culture. The total area will be 300 ha.

Q. How is the progress in the development of fish culture in FFDA districts in Punjab?

A. We have at present FFDA in 4 districts viz., Gurdaspur, Jullundar, Amritsar and Ludhiana. The Government of India has recently sanctioned another FFDA for Sangrur district. This agency has not yet been started. Of all the four agencies, the progress in the Gurdaspur agency is the best. 224 ponds with an extent of 157 ha. have been allotted to the trained fish farmers and 204 ponds with an extent of 148.30 ha has been brought under fish culture. The farmers received loans of Rs. 2.38 lakhs for improvements to the ponds etc. and they also received a subsidy of Rs. 36,625/-. So far, from 1977-78 to 1981-82, 130 ha were exploited resulting in a catch of 113 tonnes. The results were somewhat less in other FFDA's.

Q. The performance of the FFDA's in Punjab seems to be capable of considerable improvement? Do you agree with me?

A. This is a developmental activity and of course much more can be done. I have to mention here that as has been done in Karnataka where good results have been achieved, it is necessary that the Chairman of the FFDA should be the Director of

Fisheries. The Deputy Commissioner who is the Chairman at present has multi-farious activities and it is difficult for him to devote the time and attention necessary to promote the activity. The core of the work is of a technical nature involving the implementation of technology aimed at production of quality fish and higher fish production. Only under the effective supervision of the Director of Fisheries as Chairman, the targets can be achieved. This is my personal view.

Q. Once all the districts are covered by FFDA, what would be the nature of work to be handled by the fisheries department?

A. FFDA is a means to spread fish culture. In other words the FFDA is a tool for the directorate to achieve its objective of spreading fish culture. The complexion of the work at the directorate will change as the coverage by FFDA progresses. Till such time as this coverage is total it is necessary to have a clear-cut bifurcation of the responsibilities of FFDA and the departmental officials, so that there is no overlapping in the work.

Q. What special steps have been taken to spread the technology of inland fish culture?

A. As per the instructions of the Government of India we have set apart 2 ponds in each FFDA districts under TACT (Total Aquaculture Technology) programme for demonstration. We have also taken steps for the setting up of hatcheries under FFDA, Jullundar, at fish seed farm Vir Sikhargarh, Kapurthala. Such hatcheries will also be set up in other FFDA districts.

Q. What is being done for the socio-economic uplift of the fishermen in Punjab?

A. Our government has approved of a scheme for the socio-economic uplift of persons belonging to scheduled castes through fish culture activities. Under this programme 100% subsidy is given for the excavation of ponds. 200 families are proposed to be covered at the rate of 0.25 ha. per family. Thus 50 ha of water area will be covered in all.

In addition to the subsidy for excavation, further subsidies at Rs. 500/- each will be given for feed and manures and other inputs. Fish seed will be supplied by the department free of cost at the pond site. The outlay on the scheme is Rs. 15 lakhs and this has been taken up under the 20 point programme.

In addition to the above scheme, there is a general one which provides for subsidies for excavation and renovation of ponds for fish culture. Under this scheme, a subsidy of Rs. 6,750/- per ha. will be given for excavation and Rs. 2,500/- per ha. for renovation. These subsidies represent approximately 25% of the total cost. This is applicable to all categories.

FISHING CHIMES INVITES

Articles having a bearing on commercial fisheries and their Development.

Special reports on Fisheries Projects and Institutions are also welcome:

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Fishing Chimes

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INTRODUCING SKIPPERS:

All Fishing Companies should have Uniform Salary and Incentive System —SAYS CAPT. PILLAY



CAPT. N. S. PILLAY

Capt. N. Sivaramalingom Pillay, 33 years old, hails from Kagercoil in Kanyakumari district in Tamilnadu. He is a graduate in Zoology from Madurai University. Having passed the examination in 1969, on the advice of Mr. Nalliander, who was then a Deputy Director of Fisheries in the Fisheries Department of Tamilnadu, he joined the Fishing Second Hand Course at CIFNET, Madras in 1970 June. Having completed the course in 1971, he joined M/s. New India Fisheries as a trainee in July 1971. Having worked there for 3 months, he joined the in-vessel training scheme at the Integrated Fisheries Project, Cochin in October 1971. After acquiring requisite sea time there by working for a duration of 2 years, he appeared for Fishing Second Hand Examination in 1973 and obtained relevant ticket in 1974. Hereafter he joined as a Bosun at The Exploratory Fisheries Project, Goa and was there for a period of 3 months. After this, he joined M/s. Union Carbide at Visakhapatnam around the middle of 1974. He resigned from this company after working as second hand for 2 years. Obtaining his skipper ticket on 7 July 1977, he joined I.T.C. limited on 25 July 1977 and was there for one year in command of Sudha 7 and Neelnayak. Believing that he would have better opportunities in smaller companies he left I.T.C. and joined Marine Fisheries (P) Ltd. as a skipper. However, he was there only for a short duration and joined Srinivasa Sea Foods (P) Ltd. in December 1978 and continued there till November 1982. He has now resigned from this company as he received an offer of employment as skipper in M/s. Ocean Trading (NIG) Ltd., Lagos, Nigeria. He expects to take up his new assignment in December 1982. On the eve of his departure to Nigeria, Capt. Pillay had the following to say.

TREATMENT IN LARGER VESSELS

Capt. Pillay cherishes his service under Srinivasa Sea Foods as the best out of the various companies he served. When asked about his impressions of his tenure under New India, Union Carbide, I.T.C. and Marine

Fisheries, Capt. Pillay said that Union Carbide never allowed the floating staff to have the feeling that they were part of the company along with the rest. They rarely appreciated hard work. Same was the case in I.T.C. Union Carbide never gave incentives to crew during those days. He said that recently they had

stopped ex-gratia payments and withdrew provident fund facilities and started giving incentives. The treatment that floating staff received under I.T.C. was the same as in Union Carbide. According to him I.T.C. had also started payment of incentives very recently and shortly before they closed down their operations. In regard to Marine Fisheries, he said that he could not adjust himself with the style of the management of the company. The temper relations were always in conflict. In New India the crew received good treatment, he said.

HIS BEST CATCH

His working results were the best while he worked as a bosun on Union Carbide's vessel, Lakshmi Rani. The vessel always landed a minimum of 25 tonnes of whites in a voyage. The best catch during his work on Lakshmi Rani was 35 tonnes of whites in a single voyage. They used to throw out browns during those days. At that time there were only 12 trawlers with Union Carbide i.e. Lakshmi Rani and Sunita Rani.

These were operated off Ganjam only. In those days, we never thought of going to sandheads as the shrimp was available in good quantity off Ganjam. Pillay said that he was on board Mayarani, when she was brought under Capt. Raju's command from Mazagon Dock Ltd. Bombay to Visakhapatnam. Regarding her performance his assessment was that she was consuming excessive quantities of oil and the catches were also disproportionately low. He participated in five fishing voyages on this vessel. Subsequently several alterations were made to this vessel but he was not aware of the details.

Capt. Pillay said that during his service in I.T.C. Ltd., his highest catch was 7.9 tonnes of shrimp. This was a record catch with I.T.C. and had not been broken till they closed down operations. He said that the management of the I.T.C. Ltd. gave a certificate to him to that effect.

Capt. Pillay says that Srinivasa Sea Foods gave personalised attention to each of the floating staff. However, of late, he said, a tendency of not giving careful attention to the suggestions of skippers had been creeping into this company also. His highest catch while he was working under this company was 8.3 tonnes in September 1982. That was his highest catch after he left Union Carbide.

EFP LED THE WAY

When Capt. Pillay was asked to confirm that commencement of fishing activity in sandheads area by Indian vessels was the result of observing Thai vessels fishing over there, he said that this was not at all correct. He said that the Exploratory Fisheries Project at Paradeep, around 1977, when Mr. Y. Sreekrishna was the Assistant Director, conducted

exploratory fishing off Paradeep at False Point and this resulted in good shrimp catches. Till then the Union Carbide's vessels were fishing only upto Ganjam area from Visakhapatnam. After coming to know about the good shrimp catches in Paradeep area, the vessels of Union Carbide moved over there. From there it was a short step to Sandheads. In the early stages, the vessels were operating close to the light vessel for bearings. In a few months, the vessels acquired familiarity with the area and they were no longer dependant on bearings from light vessel. Seeing Union Carbide's vessels fishing in the area the Mexican trawlers also followed them. "It is however to be admitted", says Pillay, 'the fishing activity by the Indian vessels east of anchorage was due to the Thai vessels. These vessels were seen fishing in that area and Indian vessels also started covering that zone". During this season, fishing for shrimp was being done adjacent to Moor island where good white and brown grounds were located. Good fishing was available in this area only during winter time. "We do not cross Swatch of No Grounds and remain distant from Moor Island as advised by the Navy" observed Pillay.

NEED TO INCREASE SHRIMP TRAWLERS

Capt. Pillay says "There is immense scope for intensifying and expanding the shrimp fishing activities along the east coast, particularly the upper east coast. Increase in the number of trawlers would also lead to discovery of new shrimp grounds. Only because of the introduction of large number of Mexican trawlers, it was possible to locate new shrimp grounds. If the introduction of Mexican trawlers was not there, we would have still been

continuing or limiting our shrimp activities to Ganjam and Kalingapatnam areas. Formerly the shrimp fishing activities were there only upto about 25 fathoms. Now the trawlers conduct fishing upto 60 fathoms depth. I have no doubt whatsoever in my mind that there is need to increase the number of shrimp trawlers for fishing off upper east coast as well as south east coast. There is absolutely no truth in the propaganda that shrimp stocks off upper east coast have been over-exploited. If this is the case the shrimp fishing would not be in the state of richness as it is now".

TAP SOUTH-EAST AND WEST

Pillay said that there was plenty of shrimp south of Visakhapatnam also. He was unhappy that there was not much of effort in this area. The grounds at present were undisturbed. If there were more number of vessels this area would be covered out of necessity, as the effort would then be to cover new areas. So far as west coast was concerned, the Captain said that there had been no serious effort for exploiting the shrimp resources of this area. Efforts made in the past had only been confined to few vessels belonging to Tata Oil Mills New India Fisheries and Kerala Fisheries Corporation. Their fishing activities were limited only to 25 fathoms. They never operated beyond this. They heard about good shrimp catches off Visakhapatnam and shifted to that place. He was absolutely clear in his mind that if intensive efforts were made off the west coast of India definitely there would be impressive shrimp landings. He said that when he conducted fishing along west coast, they were able to get good shrimp landings off Pennani and Ratnagiri from Tata Oil Mills and Kerala Fisheries

Corperation's vessels. Unfortunately these good results were not followed up.

DO NOT WAIT TILL GOVT. FRAMES RULES

Dealing with the present indiscipline among the floating staff of certain companies such as Tata Oil Mills, Capt. Pillay said that these problems could be avoided only when all the fishing companies adopted a uniform salary and incentive system. As matters stood, each of the companies had its own salary and incentive structure. The floating staff under the companies with disadvantageous patterns started agitations. Referring to the serious lacuna of not having statutory regulations governing the service conditions of floating staff of fishing vessels, Pillay suggested that representatives from the industry and the floating staff should sit together and evolve mutually acceptable terms and conditions to be followed. Fishing companies and floating staff should not wait for the government to formulate and notify the rules. It would then be possible for the floating staff to fight for their rights in case the common guidelines were contravened by the fishing companies.

MISMANAGED

When asked to give his views as to why Union Carbide had run into losses although they operated the largest Indian fishing fleet, and the catches were good, Pillay says, "The reason for this is mismanagement and if I may add, corruption. As an instance I may mention an instance of one purchase officer of Union Carbide recently misappropriating about Rs. 27 lakhs. This is now widely talked about. The purchase officer was simply asked by the management to resign, even

without any enquiry. There is a talk that, some higher-ups are also involved in this. Another instance which I may mention is that the repair work of Mayarani was given to one Advani Brothers in Visakhapatnam. This company, it is said, presented a huge bill amounting to Rs. 25 lakhs. This is a unreasonably high amount for the work done. This gives rise to the belief that there must have been something wrong somewhere".

TRIBUTE TO LATE KAUL

Pillay was of the view that after Mr. Kaul relinquished the post of Fleet Manager in Union Carbide, there had been no proper fleet management. Now anyone who sat in his chair was a fleet manager, according to him. The fleet management system built up so well over years by Mr. Kaul had now been completely shattered. He paid his compliment to Mr. Kaul for the excellent manner in which he managed the fishing fleet of Union Carbide, although during those days they were nurturing a grudge against him for his strictness.

MALPRACTICES

He said that several malpractices took place while the shrimp catches of the trawlers were either sold to the processors or taken to the processing plants of the companies owning trawlers. This, in effect led to reduction in the incentives paid to floating staff.

SHORE ENGINEERS NOT NEEDED

The Captain was of the view that there was no need for shore engineers in fishing companies. The overhauling of the main

engine was done by M. S. Larsen and Toubro. Small items of repair work relating to winches, auxiliary engines could be attended to by the engineers attached to the vessels. In any case the engineers on the respective vessels maintained the machineries while on voyage. They could attend to this at shore also. If there were complicated repairs requiring closer attention, these could be entrusted to a workshop and such items of work could be supervised by the engineers of the vessels. He felt that there was no justification to appoint any shore engineers in addition to the engineers on board fishing vessels.

GOVT'S INACTION AT ITC'S CLOSURE OF DSF ACTIVITY

Pillay says "In all the deep sea fishing divisions of larger houses there is mismanagement in general. Tatas, Britannia and Konkan are perhaps the only exceptions, although I have certain views about them also. Their personnel and financial management looks unrealistic to floating staff." Referring to the closure of their fishing division by I.T.C. Ltd., Pillay said that he was surprised that the government was keeping quiet at this closure which was without justification. Government was wedded to social justice and they should do something to reopen the activities, for the reason that so much of investment was lying idle and so many floating staff had been left unemployed on account of the closure.

FLOATING INVESTMENT

In regard to the operations of Britannia in the fisheries field Pillay says "the acquisition of Blue Breeze by the company was a mistake. The vessel is defective and it is a floating investment. It is

surprising that such a big company could be misled into purchasing such a vessel". In regard to deep sea fishing division of Tata Oil Mills, he was appreciative of the good local management at Visakhapatnam by Capt. Jayakumar. He however felt that Capt. Kumar should have consulted other senior skippers and taken their advice in dealing with the problems which he was now facing in regard to indiscipline among the floating staff of the company. Capt. Pillay was also appreciative the manner in which of Capt. Balakrishnan, Manager of the Kerala Fisheries Corporation at Visakhapatnam dealt with the striking floating staff sometime back. Cap Balakrishnan supported

all their just demands and made the management accept the same. Regarding the management of fisheries activities of Konkan Fisheries (P) Ltd., he said that the management of the affairs of the company at Visakhapatnam was upright and alert. He, however, had a complaint that the management was too strict and unbending.

Referring to the opening of CIFNET unit at Visakhapatnam, Capt. Pillay expressed the view that this was a step in the right direction. However, he felt that, they should have started the courses after providing necessary facilities. The trainees should not have the disadvantage of appearing for the examinations ill-equipped.

Seven is the luckiest number of Capt. Pillay. He said that he was posted on Sudha-7 for in-vessel training under New India Fisheries. When he became a skipper under I.T.C. he was again placed in command of the same vessel purchased by I.T.C. from New India. He was also relieved from I.T.C. from the same vessel. He obtained his skipper's ticket on 7 July 1977. He received his appointment letter for his new post in Nigeria on 16-11-1982 and he is likely to take over the new post on 25-12-1982.

Capt. Pillay is happily married to Mrs. Vanitha, 30 years, who is an M.A. in Economics. They have a daughter aged 2 years.

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4DAY CHRONICLE

VISAKHAPATNAM:

RAJESWARI HITS JACKPOT

The operations of mechanised fishing boats had improved considerably in November 1982; each boat landing 40-45 kg. of tiger, white and brown shrimp. One mechanised boat, MFV Rajeswari had a jackpot, with a catch of 500 kg. white on one day. This fetched to the owner over Rs. 50,000/-. The raw material prices for landings from mechanised boats were Rs. 102/- per kg. for tigers and whites, and Rs. 62/- per kg. for browns, with a tendency for further improvement.

LONGER VOYAGES

As the fishing results were good, the mechanised boats had started

making 2-day voyages. Many operators were thinking of going in for slightly larger vessels capable of staying out for fishing for 4-5 days.

GOOD LANDINGS

On account of the recent cyclonic weather, there was a beneficial change in the fishing conditions off Srikakulam coast. The fishermen operating both mechanised and non-mechanised boats from Kalingapatnam had been getting continuously good shrimp landings.

The trawler operations continued to be encouraging, each vessel landing 5-8 tonnes of shrimp per voyage with a sizeable component of whites and tigers. The trawler material prices at the quay for

shrimp were on the upswing reaching a critical level that would hurt processors. On 18 November tigers fetched Rs. 130-136, whites Rs. 113-115, and browns Rs. 70-75 per kg. A week before the prices were far lower.

FIRE!!

The trawler, Marine venture, of M/s. Marine Fisheries Pvt. Ltd. which was on the slipway for repairs was involved in a minor fire accident. There was a fire in the crew quarters caused by a welding spark. It was stated that the hydraulic motor of the winch was also burnt.

CIFNET VESSEL

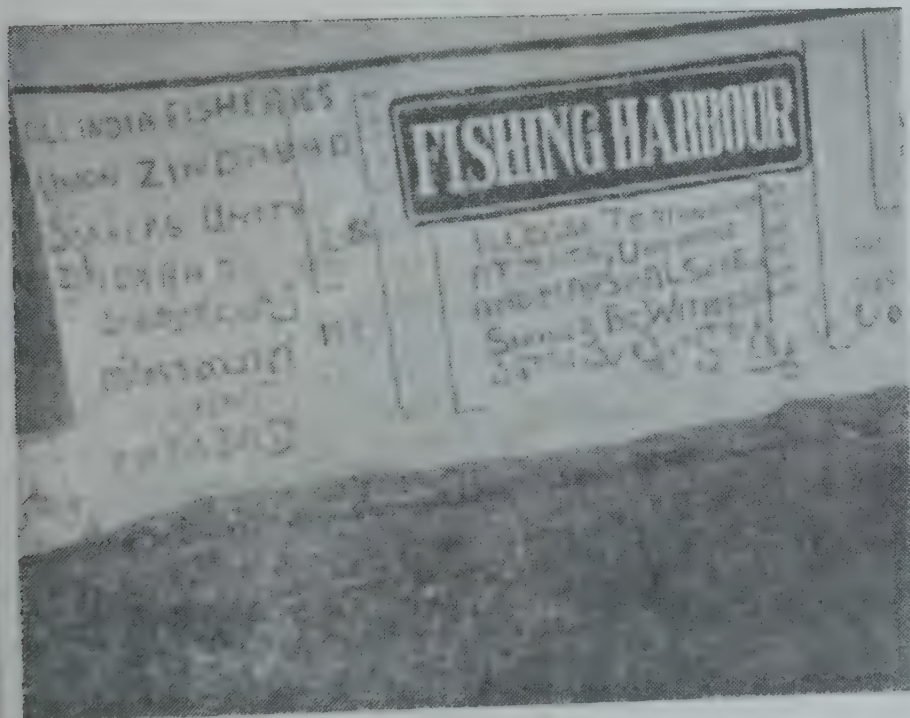
Skipper III and Master Fishermen II, vessels belonging to the CIFNET, Madras had come to Visakhapatnam for dry docking at the Hindustan Shipyard. It is stated that these vessels would be detained at Visakhapatnam to provide training to candidates undergoing training at CIFNET, Visakhapatnam.

NEW STINK IN FISHING HARBOUR: POLITICS

It is understood that there was a split in the mechanised boat drivers association, triggered by conflicting political affiliations. A new union led by one Mr. Kola Gurumurthy, a communist corporator had come as a rival to the one controlled by Congress(I) and headed by Mr. Nollu Appalaraju. Both the unions conducted public meetings recently at the fishing harbour, condemning each others activities. There is a talk that a third union led by newly formed regional party (Telugu Desam) is also in the offing.

SLOGANS

The walls of the fishing harbour are nowadays full of slogans. Some



**WRITING ON VIZAG FISHING HARBOUR COMPOUND
WALL CALLING FOR UNITY OF WORKERS AND
DEMANDING REINSTATEMENT OF RETRENCHED
WORKERS**

of these demanded 50% employment on trawlers to the local fishermen. A few of the slogans warned the skippers and engineers for ignoring local fishermen and bringing their own men from Kerala and Tamilnadu for employment on trawlers. Some slogans are outright in demanding employment for local fishermen.

UNHAPPY FLOATING STAFF IN UNION CARBIDE

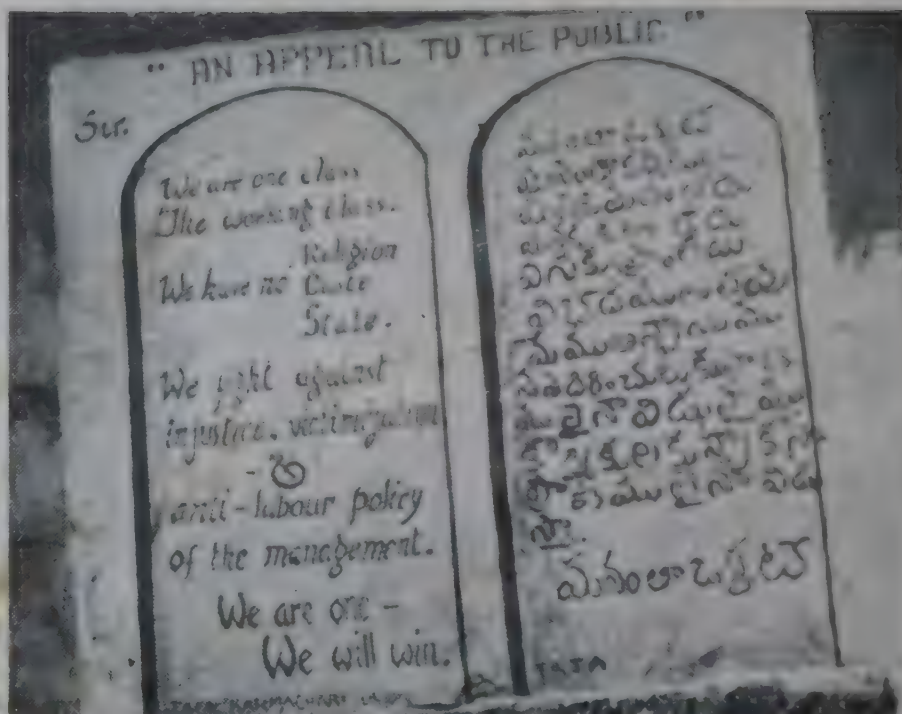
It is stated that several skippers and other members of floating staff working in Union Carbide are preparing themselves to quit the services of the company, being unhappy at the treatment meted out to them. It is said that the skippers are so unhappy that they are even prepared to come out and work as fishing second hands in other companies. Many say that the shore management of the company had deteriorated considerably. MT. Mayarani of the company had been under major engine repair for the past 2 months. The duration of stay of the company's vessels at port between voyages had increased considerably, it is stated.

LESS WEIGHT, LESS INCENTIVES

One of the companies, owning trawlers as well as processing plant, according to the complaint of their skippers, was cheating the crew in the matter of weighing, in order to bring down the payment of incentives.

TOMCO'S TUSSELE

The situation in regard to the deep sea fishing division of Tata Oil Mills at Visakhapatnam continued to be unresolved. After suspending 19 crew members, the company closed down operations. The Tata Fisheries Karmachari Union continued to demonstrate before



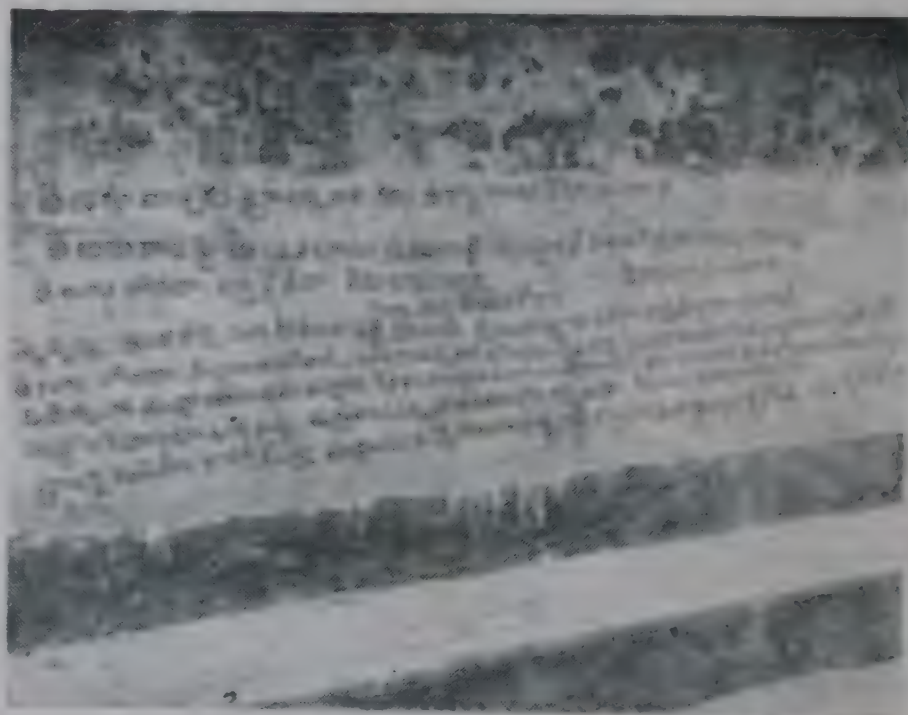
GENERAL APPEAL BY TATA KARMACHARI UNION

the office of the company at 10 a.m. and at 5 p.m. daily, raising slogans against management. It is stated that the management had asked all their staff members to

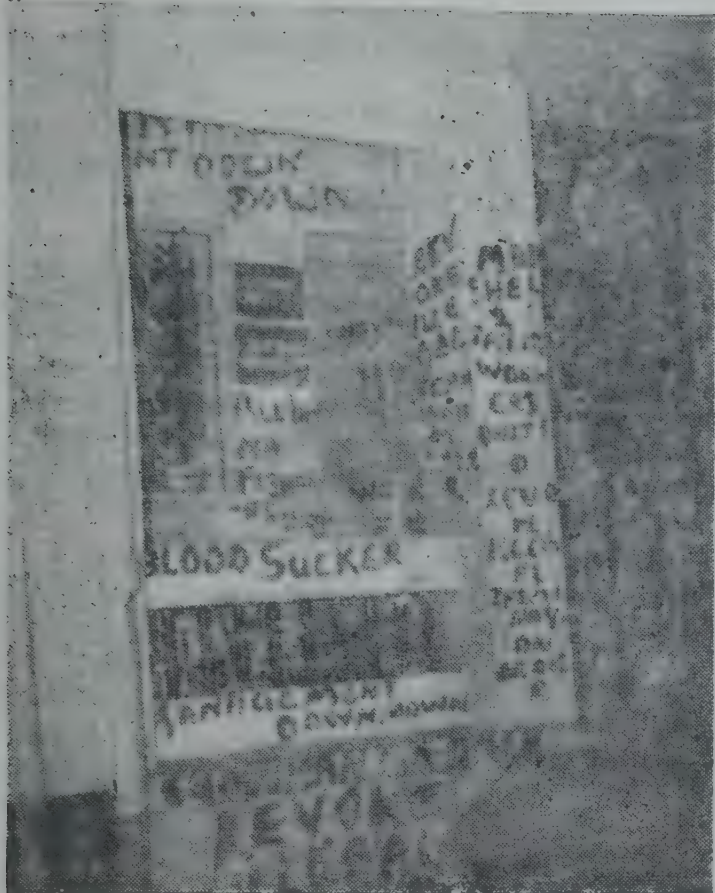
go on leave and the office was partially closed.

MARSHALL IN THE THICK

M/s. Marshall Sea Foods also continued to be in trouble. The



WRITINGS ON VIZAG FISHING HARBOUR WALL WARNING KERALA AND TAMIL SKIPPERS NOT TO FOIST THEIR MEN ON FISHING VESSELS AT VIZAG IN PREFERENCE TO LOCAL WORKERS



SLOGANS ON THE OFFICE WALL OF MARSHALL SEA FOODS, VISAKHAPATNAM

company started off in the field with the confidence that they could manage the operations without difficulty as most of the Directors had experience in running transport vehicles. This experience being different and not applicable to deep sea fishing field, their optimism proved to be false. Now they have the experience and it can be hoped that they would soon adopt a pragmatic approach. The walls outside of the office of the Marshall Sea Foods are full of slogans against the management. One demand covered by the slogans is that the orders of the company suspending some of the crew members should be revoked. It appears that the company is keen on replacing the existing floating staff as they are non-cooperative and creating problems. Their advertisements in newspapers for crew had been appearing often and on.

HUNGER STRIKE

In the name of All-India Fisheries Union, several persons have undertaken a hunger-strike seeking acceptance of their demands, in the fishing harbour area.

KAKINADA

Shrimp catches mostly brown

and poovalan, from mechanised boats had improved considerably, although they were somewhat dull in the second week of November. The total average daily landings were of the order of 10 tonnes. The raw material prices per kg. were Rs. 60/- for HL brown, Rs. 40/- for HL poovalan, Rs. 36/- for brown head-on (large), Rs. 11/- for brown head-on (small) and Rs. 7/- for head-on poovalan (small).

CALLING ASTARANG

About 70 mechanised boats left for Astarang in Orissa, ignoring the warning letter received from some quarters in Orissa that they would be prevented from conducting fishing operations from Astarang. It is stated that more number of mechanised fishing boats, from Visakhapatnam, are getting ready to go to Astarang as it is stated that fishing in this area has improved considerably.

OTHER CENTRES

Fishing for shrimp off Paradeep had improved considerably. Shrimp landings off Machilipatnam, Nizampatnam, Madras and Mandapam and along Kerala Coast had also improved considerably.



Brackiswater Aquaculture in Tamilnadu

There are about 14900 hectares of lowlying areas suitable for brackishwater aquaculture along the Coast line of Tamilnadu. Coastal district-wise, Tanjavoor has 7300 hectares, South Arcot 2700 hectares, Chengulput 2670 hectares, Ramanathpuram 1400 hectares, Tirunalveli 570 hectares, Pudukkottai 250 hectares, and Kanyakumari 18 hectares.

CONSTRAINTS

The low tidal amplitude all along the coastline of Tamilnadu is a major constraint in the development of brackishwater aquaculture.

Besides this, the sandy nature of soil in most of the areas imposes a further limitation. Consequently the activity can be developed only where tidal amplitude, soil and salinity range offer scope for the setting up of brackishwater farms. The inadequate tidal amplitude causes problems mainly at the time of letting out of water during low tide. All the water cannot be emptied as the ponds will be deeper. By resorting to pumping this problem can often be resolved. Regarding soil, the only way is to pack the bottom with clayey soil brought from outside. Salinity range in Tamilnadu is congenial for most part of the year.

Tamilnadu is blessed with several sheltered backwaters which are not very deep. This situation can be availed of to undertake pen culture. In deeper waters floating cage culture is possible. The introduction of these activities will be a boon to the weaker sections of the society.

DEVELOPMENT PROGRAMME

The government of Tamilnadu has approved of a programme to develop around 1000 ha of brackishwater area for shrimp culture in the sixth plan period, mainly for the benefit of the weaker sections of the society.

As a prelude to this the state fisheries department has already undertaken the construction of ten demonstration farms, each with an extent of 2 ha. Each of the farms will have nursery and growing ponds.

Apart from these demonstration farms, the state fisheries department has gained considerable knowledge and experience in brackishwater farming at several centres in the state, the more important of which is the Adyar brackishwater farm, set up in fifties, for experimental work.

ADYAR FARM

The Adyar farm has a total area of 8 hectares. It has six nursery ponds (0.1 ha. each), one rearing pond (1.4 ha), and one growing pond (1.5 ha). All these ponds are now utilised for experimental shrimp culture. Prawn seed for stocking (40-50mm) is collected from the nearby backwaters. Results of the experiments carried out at the farm are quite encouraging. In monoculture of tiger prawn and white prawn 514 kg/ha in 90 days and 440 kg/ha in 90 to 120 days respectively was achieved. In polyculture of prawn and milk fish

a production of 1200-1500 kg/ha in 180 days was accomplished

PULICAT UNIT

At the farm attached to the brackishwater research centre, Pulicat, which has six Nos. of nursery ponds of 0.02 ha each and four 0.15 ha rearing ponds, improved nursery management techniques for producing prawn seed are being standardised. Improved methods of culture of white prawn are being tried out in the rearing ponds.

Close to the pulicat research centre, a model brackishwater fish farm, one hectare in extent has been constructed recently. There are also seven brackishwater farms in the private sector in the Pulicat area. Their production is reported to be around 200 kg/ha in 3-4 months.

PORTO NOVO FARM

There are other experimental farms in the state. One is the farm at Porto Novo with six half hectare ponds. Here experiments in tiger and white prawn culture are in progress. Adjacent to this farm, a demonstration unit is under construction. There is yet another small farm attached to the Marakkanam research centre, about 140 km from Madras. Prawns about 335 kg/ha in 3-4 months are being reaped from this farm.

PEN CULTURE AT KILLAI

At Killai, near Chidambaram, pen culture is being experimented upon with encouraging results. Tiger prawn at 250 kg/ha on one occasion and over 300 kg/ha of white prawn on another occasion could be harvested. There are proposals to set up either a 6 ha farm or a centre for pen culture at an expenditure of Rs. 12 lakhs in the area.

CO-OP FARM AT PAZHANJORE

The first phase of a co-operative prawn farm at Pazhanjore in Thanjavur district has been completed. This is located in a part of a 100 ha area which is stated to be ideally suited for locating a large-sized brackishwater farm. Prawn seed is available round the year, the soil is suitable, and brackish as well as freshwater is available. Steps are being taken by the state fisheries department to develop this potential area.

There are demonstration farms at Eripurakkari village near Adiramapatnam, at Kathumavadi in Pudukkottai district and in Thondiakkadu village near Muthupet.

FARMS OF HINDUSTAN LEVER AND TATA

There is also a private prawn farm near Keelavaipar village. Other private farms are coming up under the auspices of Hindustan Lever Limited, and Tata Oil Mills. There is also one private farm close to Paravai village.

State demonstration farms are nearing completion at Punnakayal and Keelavaipar village. A large farm also is expected to come up at Valinokkam in collaboration with the Tamilnadu salt corporation. There are plans to locate a prawn farm at Athangarai at the mouth of the Vaigai river. It is further proposed to set up a co-operative farm near Karangadu village close to Kottaigarai river.

BOBP TEAM'S RECOMMENDATIONS

A study of the prospects for the development of brackishwater culture was made recently by a two-member technical team from Thailand. This mission was mounted by the FAO/SIDA Bay of Bengal Programme under the

UN programme for technical cooperation among developing countries.

One observation of the team was that, in most of the farms the pond bottoms are far lower than the lowest level of low tide. This necessitates the use of pumps to remove the water that could not flow out during low tide. The soil structure of most of the farms being sandy, the danger of heavy seepage was pointed out by the team.

They recommended the undertaking of pen culture in pulicat and Killai areas through co-operatives. It was also recommended that a pilot project in floating cage culture of fish close to Donirevu village in pulicat lake area (20 ha) may be taken up. They also felt that Pazhanjore flats were well suited for the development of brackishwater prawn farms and suggested demonstration of prawn culture to the villagers around, who were very keen to take to this avocation.

They expressed the view that the soil of the area close to Punnakayal estuary was better suited for locating a farm than at the other places. Their view was that Marakkanam area was

not generally suitable for prawn culture. The mission expressed itself against increasing the number of prawn culture demonstration farms, till the present ones proved their worth.

The team recommended an integrated project for hatchery operations in the state sector. This project should consist of three units viz., culture unit, hatchery unit, and extension service unit. The culture unit will have one chief, 4 Aquaculturists, 2 nutritionists, 2 pond engineers and 8 biologists. The hatchery unit will have a chief, assisted by 3 hatchery biologists, 2 phytoplankton culturists and 2 water chemists. The extension service unit would consist of one chief, 8 biologists and 2 economists. The hatchery complex may be located on a 2-4 ha land. There would be a water pump and sea water and freshwater tanks, hatchery and other tanks, place for diatom and chlorella and zooplankton culture, laboratories for algal culture, feed preparation, dry and wet labs, workshop, generator, Airblower etc. There would be adequate office accommodation. The mission also recommended layouts of hatchery system, and rearing ponds. They also gave designs of floating cages and of pens.



Joint Venture in Deep Sea Fishing Government's Regulations

The basic policy of the Government of India is to welcome foreign investment on a selective basis in fields in which such investment would be of advantage to the Indian economy. One of the fields covered in the selected items is deep sea fishing. The Indian regulations concerning Joint Ventures with foreign collaboration are as follows:

1. Equity Participation

Foreign equity participation upto 40% is allowed either in cash or kind. In the case of export oriented industries and industries requiring sophisticated technology such as deep sea fishing, majority participation may be considered on merits. The foreign share capital should be by way of cash without being linked to tied imports of machinery and equipment or to payments for know-how, trade marks, brand names, etc.

2. Technical Collaboration

The collaboration agreements are approved normally for a period of five years from the date of agreement or five years from the commencement of production provided production is not delayed for a period of three years from the signing of agreement. Extension of the duration is agreed on merits and if the Government is satisfied that the technology transferred is not properly assimilated in an industry under consideration or the agreement relates to export oriented industry. There should be provision in the agreement that there would not be any restriction on the Indian company in the matter of procurement of capital goods, components, spares, raw materials, pricing policy, selling arrangements, etc. The collaboration agreement should not also place any export

restriction on the Indian party, without valid reasons. The Indian party will be free to export to any countries except when the collaborator has sub-licensing arrangements. There should be no provision for use of foreign brand names on products for internal sale. Although there is no objection to their use on products to be exported. In case any consultancy is also considered necessary any Indian consultancy firm should, nevertheless, be the prime consultants.

3. Export Oriented Industries

Foreign investment and collaboration are liberally welcomed in industries which are predominantly export oriented and where the link with foreign collaborator will provide an avenue for export. 100% of all exportable marine products should be exported.

4. Procedure

Entrepreneurs desirous of setting up an industry with foreign collaboration has first to obtain a letter of intent. Entrepreneurs have to apply to the Foreign Investment Board for the issue of a letter of intent.

5. Industrial Licensing

Fishing as such is not a licenseable industry in India. However, the shore establishments for processing of marine products have to be covered by an Industrial licence to be issued by the Government of India. Small and medium entrepreneurs whose investment does not exceed Rs. 10 million in land, building, plant and machinery are generally exempt from licencing. In order to reduce the delay involved, Government have decided that it will be suffi-

cient to apply for capital goods and foreign collaboration clearances straightway for schemes which are eligible for exemption from industrial licencing. Such units, will, however, require registration with the concerned authorities such as the Directorate General of Technical Development etc.

6. Employment of Foreign Technicians by Joint Ventures

Employment of one fishing technician, and one engineer on each fishing vessel operated by the Joint Venture company is allowed. The employment of one fleet manager, in case the number of vessels operated exceeds two, is also permitted.

7. Flags to be flown on vessels operated by Joint Ventures

If the vessels are owned by the Joint Venture company they have to be registered in India and fly the Indian flag. If the vessels are chartered, they may fly the flag of the country of registration during the charter period.

8. Conditions governing the operation of the fishing vessels by Joint Venture

(i) The vessels should operate beyond the range of operations of mechanised and non-mechanised fishing boats and as per the directions given by the Government from time to time.

(ii) The full list of the main items of equipment and machinery including acoustic equipment and communication equipments should be furnished to the Government.

(iii) The vessels should start operation only after they are inspected by the nominated officer of the Government of India and duly cleared by them.

(iv) The full list of the names, nationalities and qualifications of all the crew members should be furnished to the Government.

(v) The foreign personnel should be employed only after obtaining specific clearance of the Government. The Indian counterpart should make arrangements for the training of Indian counterparts personnel under the foreign technicians.

(vi) The Joint Venture Company should furnish once in a quarter full particulars of the data of fishing operations gathered during the period.

(vii) Government will have the right to inspect the vessels at any time.

(viii) The foreign collaborator should undertake to provide full technical and managerial know-how to the joint venture enterprise.

The position concerning concessions and incentives given to joint venture enterprises is broadly as under:—

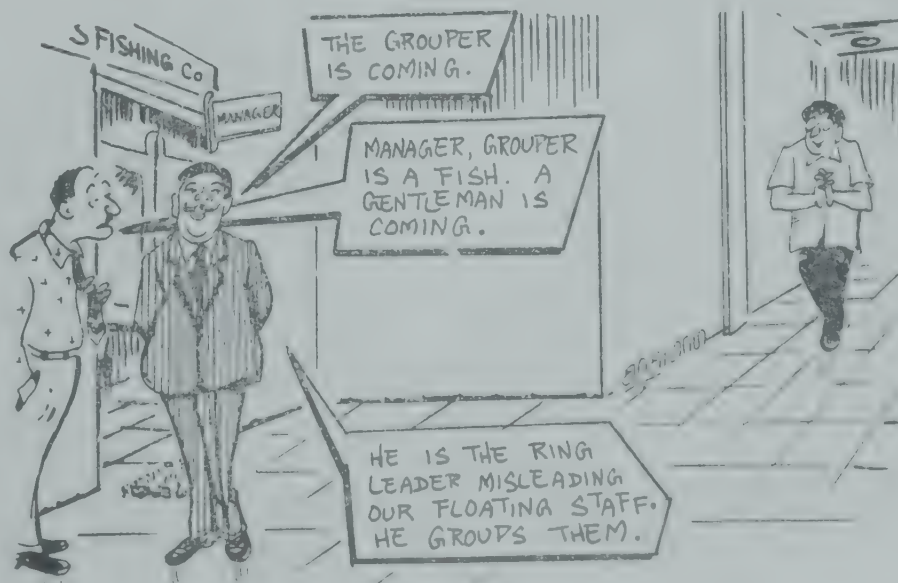
Concessions

1. No discrimination is made against foreign capital once it is admitted into country.
2. Remittance of profits and dividends is freely allowed.
3. The repatriation of foreign capital investment is allowed freely together with profits ploughed-back and any capital depreciation in the value of investments.
4. Fisheries technicians/engine drivers/fleet managers are exempt from income tax on remuneration upto Rs. 4,000 per month for an initial period of two years. The remuneration in excess of Rs. 4,000 per month will be liable to tax. If the employer pays the tax on such excess remuneration the perquisites represented by such payment of tax by the employer will also be exempt from further taxation in the hands of the technician.

5. Tax holiday is given for newly established industrial undertakings. The profits of a new industrial undertaking is exempted from tax upto 7½% per annum on the capital employed as computed under the rules prescribed.

The deduction from profits upto 7½% is allowed from the year of commencement of the business in the next four years. If the profits are in excess of 70% such excess is taxed. Where there are no profits or where the profits fall short of the capital employed, such deficiency in profits is allowed to be carried forward and set off in the subsequent years up to the end of eighth year, including the initial year of assessment. While the carry forward is permitted upto the end of the eighth year the deduction upto 7½% of the capital is limited to five years. These concessions will, however, be available only when the company is not formed by the split up or reconstitution of a business already in existence, it is not formed by the transfer to a new business of a building, machinery or plant and employs 10 or more workers in a manufacturing process carried on with the aid of power (Section 800 of Income Tax Act, 1961).

6. Inter corporate dividends received by the foreign company from the Indian Company are taxed at 25% (Section 115 A of Income Tax Act, 1961).
7. Depreciation allowance is granted to tax payers on buildings, furniture, plant and machinery at prescribed rate. This varies from 2.5% to 10% depending on the nature of the item.
8. Under the existing provision of the Income Tax Act, interest payable by an industrial undertaking in India on moneys borrowed by it under a loan agreement entered into with any approved financial institution in a foreign country is exempt from income-tax. Interest payable by industrial undertakings in India on any money borrowed or debt incurred in a foreign country in respect of purchase outside India or raw materials or capital plant and machinery is also exempt from tax to the extent to which such interest does not exceed the amount of interest calculated at the rate approved by the central government in this behalf (Section 10(15)/IV of the income tax act 1961).



Boat Building Yards Wound Up

V. KRISHNASWAMY

Our Madras Representative

The four boat building yards owned by the Tamilnadu Fisheries Development Corporation, two at Royapuram, Madras, and one each at Nagapattinam and Mandapam were closed down on October 20, 1982. This closure has led to the retrenchment of about 570 workers, of whom 465 are skilled. This is a very unfortunate development, particularly when the Royapuram yard started producing fibre glass beach boats with technical assistance from FAO, at prices that would yield economic returns to the fishermen.

The reason put forth by the authorities of the Corporation for the closure is that the demand for all kinds of mechanised boats is on the decline. This stand is contested by several. They say that the demand exists, particularly for fibre glass beach boats. It is stated that fishermen of a village near Madras had asked for 30 beach boats of FAO's Ind 21 model. Instead of taking advantage of this offer, the authorities passed on the deal to private yards.

After studying the skills of the boat builders in the state the FAO concentrated its boat building activities under its Bay of Bengal Programme (BOBP) at the two yards at Royapuram. Two of the fibreglass beach boats (boats which could be hauled on the beach) model Ind 20 and Ind 21 built by the workers of these two yards under the guidance of Swedish experts were ideal

substitutes for the massive and costlier 30-foot wooden boats. These beach-boats using both mechanised and wind-power (through sails) became popular with the fishermen of Madras. The price also compared favourably costing around Rs. 60,000.

Now that the two yards at Royapuram will no longer function, the new beach boat design projects of FAO/SIDA/BOBP will also languish. The workers felt that the FAO was planning to shift their project to Andhra. Sensing this, the Corporation, it is learnt, is reported to be planning to invite one English and one Swedish boat expert for inspection of the Royapuram boat yard.

The Fisheries department established its boat-building yards in 1965 and later in 1974 they were placed under the newly-formed Tamil Nadu Fisheries Development Corporation. The Corporation with its meagre budget and increasing overheads was unable to make profits. The Corporation had also to pay State excise being a public limited enterprise. The Government which used to provide subsidy to boats built at the yard withdrew that facility and directed fishermen to take loans from banks for their boat building work. With increase in fuel costs, fishermen were unable to repay the bank loans.

The retrenched workers are extremely unhappy at the closure of the yards. They are not optimistic about alternative employment promised by the Government under the state owned

public sector undertakings. The closure of the boat-building yards by the Corporation is felt as a setback to the development of fisheries in the State. It is hoped that atleast one of the Royapuram yards will be reopened.

BOBP PROJECT HQ TO CONTINUE IN MADRAS

The efforts of the Sri Lanka Government to get the eight-million dollar FAO SIDA BOBP project on development of small-scale fisheries in the Bay of Bengal, shifted to Colombo from Madras have failed. This project, funded by the Swedish International Development Authority (SIDA) and executed by the FAO will now remain in Madras. India objected to the shifting at the meeting of the committee for development and management of fisheries in the Bay of Bengal under the Indian Ocean Commission, held on Nov. 11, 1982 in Indonesia. As a result, the committee changed its decision taken last year. India was absent at the earlier meeting when Sri Lanka offered to provide "host facilities" to all projects of the committee. At the recent meeting held in Bali, Indonesia, India and Sri Lanka explained their respective stands. After detailed discussions, it is stated, the committee agreed to the proposal jointly put forward by India and Sri Lanka. According to this, the headquarters of the project for development of small scale fisheries will remain in Madras till the termination of the project. Though the project would expire by the end of 1983, the consensus among the countries was that it should continue beyond that term. Nearly 75 per cent of the sum allotted to the project had been utilised.

Under the agreement, units for fishing craft development will be located in Sri Lanka making use of

the existing infrastructure facilities, while work essential for India will continue as it is. The new international staff-technologists and aquaculturists- will be located in Colombo, it is learnt. India, Malaysia, Maldives, Sri Lanka and Thailand besides FAO are members of the committee.

The project set up in 1979 for a five-year period aims at bettering the life of fisherfolk (about five million including those dependent on fisheries on land) in India, Bangladesh, Malaysia, Sri Lanka and Thailand.

According to Mr. L.O. Engvall, programme director of the project, small-scale fisheries were sought to be developed mainly through induction of technology relating to

coastal fishing with small mechanised craft and nets of improved designs and of aquaculture. Intensive experiments on improving traditional fishing gear in India, Bangladesh and Sri Lanka had been carried out, he said. High-opening bottom trawls had been introduced at Tuticorin. The trawls tapped underutilised fish resources and reduced the pressure on over-harvested shrimp. Mr. Engvall felt that new and better beachcraft were being developed for several states in India and Sri Lanka and commercial fishing with a boat developed for Andhra Pradesh showed that it was economically viable and safer, more versatile and productive than the traditional boats of that area. Commercial trials would shortly begin in Tamil Nadu and Sri Lanka with the boats developed for these areas.

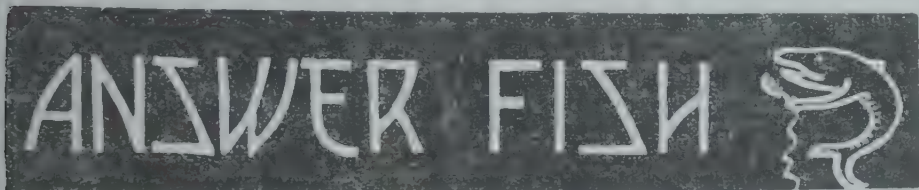
subject to various conditions.

The application fee is Rs. 500/- and there is a licence fees of Rs. 10,000/- per vessel. Further the Indian parties have to provide undertakings in the form of bank guarantees to government, for such amounts as may be stipulated. The guarantee amount prescribed was Rs. 2 lakhs per vessel in the latest case cleared. In future cases, the powers under the rules being unlimited, the guarantee amount can be of any extent. Further, linked with the guarantee amount, is the obligation to buy equal number of vessels as chartered.

The owners of foreign fishing vessels probably feel that these constraints prevent Indian charterers to fully avail of the permissions issued for operating chartered vessels. There is evidence to this effect from the present trend. Out of over 60 units permitted for operation on charter, Indian parties have so far introduced 13 units (7 bull trawling units and six stern trawlers). Further, the sharing of gross returns between owners and charterers on 85:15 basis may sometimes land the owners in losses. The shared returns may not sometimes be adequate to cover all the expenses, which they have to bear out of their share.

In this situation, it will be advantageous for them to obtain licenses from the government directly for the operation of their vessels paying royalties, the rates of which vary from Rs. 500 to Rs. 2,000 per ton depending on the type of operation. These payments may work out to be cheaper than giving their vessels on charter to Indian parties. They need not pay any deposits or furnish any guarantees. There will be no Indian party on board to keep watch unless specifically posted by the government and

(Contd. on p. 44)



Q. Why is the programme for chartering of fishing vessels by Indian enterprises not picking up? In this situation, would our government allow foreign vessels to fish in our EEZ? If so, what would be the effect of this on Indian enterprises?

R. B. Vasavada
Ahmedabad

A. The Maritime Zones of India (Regulation of fishing by foreign vessels) Act 1981 provides for issuing licences by our government to owners of foreign fishing vessels or any other foreign citizens for operating foreign fishing vessels in Indian EEZ. Such owners or persons have to make an application to the Central Government to consider the same and to issue a licence, if the application is found to be in order.

The rules governing the issue of licences were notified by the ministry of Agriculture on 26 August 1982 (Text published in this issue). Under the rules, besides an application fees of Rs. 500/-, royalty has to be paid by the parties to the government at stipulated rates per tonne.

The rules having been notified only on 26 August 1982, there is as yet no indication in regard to the reaction of owners of foreign fishing vessels. Very soon these will be known.

The rules for chartering of foreign fishing vessels by Indian parties are also contained in the notificated dt. 26 August 1982. Under these rules permits will be issued by the government to Indian parties for chartering vessels

MARKET TRENDS

ANSWER FISH

(Contd. from p. 43 col. 3)

it will be easier for them to tranship part of the catches on high seas. This will enable them to reduce their royalty payment.

The effect of some of the stringent rules governing charters by Indian parties and the relative laxity in the rules governing issue of licenses to foreign vessels may become evident very soon. The success of this new programme will no doubt depend on the response from foreigners and the quickness with which decisions would be taken.

As the rules do not specifically lay down any inter-se priorities between issue of licenses (to foreign vessels) and permits (to Indian parties), the possibilities are that soon the direct operation by foreign vessels may gain momentum. This will be disadvantageous to Indian enterprises and the role they can play will become constricted.

QUIZ

1. Area in hectares brought under fish culture in Punjab is
(a) 1092, (b) 2019, (c) 902.
2. Total pond area in hectares found to be readily suitable for being brought under fish culture in Punjab is
(a) 2234, (b) 3224, (c) 4322.
3. Total pond area in hectares that can be reclaimed for fish culture in Punjab is
(a) 3124, (b) 2134, (c) 2413.
4. Dhands in Punjab and Haryana states are
(a) water areas akin to Ox-bow lakes, (b) deep water

Owing to shortage of supplies and strengthening of yen to some extent, Japanese purchases of frozen shrimp from India were fairly brisk in Oct-Nov. 1982. There had been increase in export prices as well. This upward trend is expected to continue atleast till the new year eve when purchases would reach a specific stage. Some experts believe that

the export price increases were on account of the speculation by certain trade circles in Japan. Within Japan there was a marginal increase in the sale prices of larger sizes from first to second wholesaler levels.

The following were the prevailing prices in the middle of November 1982:

JAPAN

Type	Count Range	Price Range Per Kg/US \$
HL WHITE	8/12-71/90	15.50 - 4.85
HL TIGER	8/12-71/90	14.80 - 4.50
HL BROWN	16/20-91/110	13.90 - 4.30
PUD	20/40-Broken	6.25 - 1.80

U.S.A.

Type	Count Range	Price Range Per Lb/US \$
PUD	130-200 to 300/500 Broken	2.05 - 1.50 0.90 - 1.00
SAND LOBSTERS	U/1 - 4/6	2.40 - 4.45
ROCK LOBSTERS	1/2 - 16/up	4.15 - 6.45
FROG LEGS	2/4 - 8/12	1.15 - 1.55

Scampi exports to Western Europe commanded returns ranging from U.S. \$ 5.80 for U/5 to U.S. \$ 3.75 for 21/25 per lb. Pomfret exports to gulf countries fetched a

price of US \$ 2.30 - 2.60 per kg. The following were the export prices for various types of fish in frozen condition.

Type	Country	Price Per Kg/US \$
SARDINE	KUWAIT	1.00
PEARLSPOT	KUWAIT	2.50 - 2.70
SEER	SAUDI ARABIA	2.50
THREADFIN	SINGAPORE	2.50
SNAPPER	SINGAPORE	1.75
EELS	SINGAPORE	3.00
CROAKERS	SINGAPORE	0.80
RIBBONFISH	SINGAPORE	0.80
FLOUNDERS	SINGAPORE	0.80
MACKEREL	SINGAPORE	2.50

pools of rivers, (c) beel-like waterspreads.

6. Extent of Dhands area with the fisheries department of Punjab is

(a) 525 hectares, (b) 540

hectares, (c) 450 hectares.

7. Length of rivers in Punjab is

(a) 1044 miles, (b) 1144 miles, (c) 944 miles.

8. Number of Fish Farmers Development Agencies functional in Punjab:

(a) 5, (b) 3, (c) 4.

9. Fish seed production in Punjab in 1981-82 was

(a) 43.83 lakhs, (b) 34.38 lakhs, (c) 33.84 lakhs.

10. Nursery and rearing area available for seed production in Punjab is

(a) 7.512 hectares, (b) 5.712 hectares, (c) 7.215 hectares.

11. Fish production in Punjab in 1981-82 was

(a) 2300 tonnes, (b) 3200 tonnes, (c) 2030 tonnes.

12. Analysis of soil of fish ponds is carried out in Punjab through

(a) Soil testing labs attached to fish farms, (b) Soil testing kits supplied to farmers, (c) Mobile fisheries field laboratory.

13. Extent of new ponds excavated in Punjab in 1981-82 was

(a) 22.44 hectares, (b) 42.24 hectares, (c) 24.24 hectares.

14. Extent of pond area renovated in Punjab in 1981-82 was

(a) 64.49 hectares, (b) 46.49 hectares, (c) 44.96 hectares.

15. Length of Sutlej river is (a) 147 miles, (b) 125 miles, (c) 174 miles.

16. Quantity of fish seed production in Punjab increased from 1977-78 to 1981-82 by (a) 3 times, (b) 4.5 times, (c) 5.5 times.

(Please see answers on p 53)



NAVAL ARCHITECTS

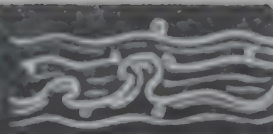
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NEWS WAVES



SEA WEED SENSATIONS

The Central Salt and Marine Chemicals Institute (CSMCRI) Bhavnagar has been doing commendable job on the utilisation of sea weeds for the last few years.

The recent surveys and experiments conducted by the scientists at the Institute have brought out several interesting possibilities of making seaweed culture a great industrial viability in India.

The recent findings on the sea weed called 'enteromorpha' proved its highly curative qualities against tuberculosis. This sea weed is abundantly found along the coast of India. This plant is hundred percent effective according to the scientists who have carried out the experiments in a TB Hospital at Amargadh. Enteromorpha has been found to be effective in eradicating 20 types of bacterial organisms. A culture station was set up at Okha.

According to Dr. M. M. Taqui Khan, Director of CSMCRI, similar experiments with seaweeds are now being actively conducted at the Central Drug Research Institute, Lucknow, Indian Institute of Technology, Bombay and Osmania University, Hyderabad.

A liquid fertiliser is in the offing from the seaweeds. The seaweed 'sargassum' contains many micro nutrients needed by plants, according to Dr. Khan. Sargassum is widely used in many fields in countries like Japan and other far eastern countries.

According to Dr. Khan, India has a great potential for promoting a sea weed industry on a very

high scale with the know-how available at CSMCRI. He said that industries like drugs, chemicals, food and fertilisers can be set up on mass scale basing on the seaweeds as raw material. According to surveys by the CSMCRI, there are 80,000 tonnes of standing crops of seaweed.

About 12,000 tonnes of sargassum is available in the Gulf of Kutch alone. Dr. Khan said that there were about 12 seaweed based industries in our country.

The CSMCRI has been experimenting on the culture of the seaweed at the field stations at Okha in Gujarat and Mandapam in Tamilnadu.

Dr. Khan said that the CSMCRI had already completed a survey on the availability of the economically important seaweeds on the coasts of Maharashtra, Gujarat, Tamilnadu, Lakshadweep and at the moment surveys were being conducted on the coasts of Andhra Pradesh, Orissa, Andaman and Nicobar Islands etc.

According to the scientists of CSMCRI, Andaman and Nicobar Islands have the richest seaweed resources in India.

ABRAHAM OF GEORGE MAIJO ATTENDS DUTCH SEMINAR ON STEAMER

The seventeen day seminar 'Euro-Agri-Mart III 82' organised by CBI, a Dutch agency, Rotterdam is a unique one among the umpteen seminars held all over the world on fish products.

It was held on board a steamer which started its journey from Amsterdam to Paris, in seventeen

days beginning on October, 31 this year.

Among the invitees from India by the Dutch Government was Mr. P. J. Abraham of George Maijo, Visakhapatnam. Other Indians were: Mr. T. C. Kunju Kunju of Chemmeens, Cochin; and Mr. R. C. Pillai, Assistant Director, MPEDA.

The seminar trip ended on November 17, 1982 at Paris.

* * *

A. S. SHENOY REPRESENTS MPEDA IN SIAL, 82

The largest food products exhibition in West Europe, SIAL, 82 at Paris was participated by a large group of fishing community from all over the world, during November, 82.

Indian nominee for the food fair was the Marine Products Export Development Authority which was represented by Mr. A. S. Shenoy, its Deputy Director.

MPEDA also nominated few selected exporters from India to participate in the food fair with financial assistance from the Indian Government.

NATIONAL

INDIA'S EFFORTS TO PUSH MARKET IN EUROPE

An eight member team headed by Mr. S. N. Rao, Chairman, Marine Products Export Development Authority organised two-day workshops in eight major cities of European continent to widen the market for the Indian marine products.

The workshops were attended by the members of fishing community in those countries in large groups and the response from them seemed positive.

The members of the Indian trade group were: Mr. N. P. Singh, Tata Oil Mills Co. Ltd., Mr. Vijay Ranchan, Chairman, GFCCA, Gujarat, Mr. V. Sankara Subbaiyan, Managing Director, Tamilnadu Fisheries Development Corporation, Mr. Vincent Mathews, Coral Seafoods, Mr. K. S. Kamdar, Vice President, Union Carbide, Mr. Riaz Ahmed, Abad Fisheries, and Mr. S. R. Franklin, Fibrite Fisheries.

The team spent a month in the European countries.

The team also consisted of experts from other companies in India. They were: Mr. K. C. Ninan, Managing Partner, Baby Marine Exports, Mr. M. S. Malik, Exports Manager, Hindustan Lever Ltd.

* * *

VIJAY RANCHAN ATTENDS SEMINAR IN JAPAN

Mr. Vijay Ranchan, Chairman, Gujarat Fisheries Central Cooperative Association Ltd., Ahmedabad has attended a seminar on International Fisheries Cooperatives held at Tokyo for two weeks during last week of September this year.

The seminar discussed the various problems and methods to make the fisheries co-operatives more effective in developing fish production and marketing in wider areas.

* * *

GOVT'S FISH FARM AT GANDHIPALEM

The government of Andhra Pradesh has sanctioned Rs. 2.5 lakhs for the setting up of a fish farm at Gandhipalem in Nellore district.

The farm will be operative by March next year.

The proposed fish farm is meant to demonstrate the economic

benefits from fish culture and also to impart education on fish culture techniques to the local entrepreneurs. Recently the fisheries department has distributed 14 lakh of fish seed to fish farmers around the area.

The fish production during the coming years in this area is estimated to increase considerably provided the pace of the developmental activities would be maintained.

* * *

COMMACK, ROGERS ASSIST IN FILLETING TRAINING

A month long training programme on filleting organised by the Marine Products Exports Development Authority with assistance from the EEC at Cochin during the month of November, 1982 was attended by two experts, Mr. Richard A. Commack and Mr. J. F. Rogers who trained a select group of 40 members at the Integrated Fisheries Project, Cochin on the modern methods in fish filleting. Topics like hygiene, pre-process work, safety, filleting and preparation of fillet blocks etc. were covered and practical demonstrations given to the participants.

Mr. S.N. Rao, Chairman, MPEDA inaugurated the training programme on November, 2, 1982.

* * *

CYCLONE RAVAGE ON NORTH WEST COAST

A hard hitting cyclone caused tremendous misery to fishermen of the Maharashtra and South Gujarat Coast around 8 November 1982. The eye of the cyclone was centred 80 km off Saurashtra coast and it hit the coast with a speed of 180 km per hour.

While a large number of fishing boats with fishermen were feared

missing, subsequently 85 fishing boats had returned to safety at the Porbandar port. One fishing trawler was reported to have drowned near Porbandar.

The Veraval port suffered mostly material damage but country craft could not be retrieved. Human loss was negligible in Veraval. Keralites who were engaged in the sea food processing industries were safe but some of their units sustained losses and it would take a long time before they can refraction. It is felt that it would take atleast four or five months to restart the industries. The main constraint is that the electric posts have been mangled and unless power is restored the units cannot function. The loss to sea food industries on account of this disruption is estimated at Rs. 2 crores.

One mechanised boat manned by Kerala Fishermen became a victim of fury of cyclone near Ratnagiri. A few of the fishermen were feared to have died.

2 Naval reconnaissance vessels and a naval aircraft scoured the sea for 43 missing fishermen on board three vessels off Maharashtra coast. The vessels disappeared following the cyclonic storm that hit the Maharashtra coast on November 9. Naval facilities had been made available by the Chief of the Western Command, Vice-Admiral Awati. The missing vessels were 'Chandan' from Satpati, with 30 fishermen, 'Manik Prasad' from Dandi with 11 and 'Vaibhab' from Ernale with 19.

The minister for fisheries, Government of Maharashtra had promised to provide relief to families of these fishermen. About 150 km from the coast at Satpati a barrel was found, raising the hopes of locating the missing fishermen and their boats.

RAMARAJU RUMINATES ON ANTARCTICA ADVENTURE

Dr. D.V. Ramaraju, member of the Indian team that landed on Antarctica during February this year said that it was time for India to start exploiting the immense marine wealth available there.

While addressing a gathering at Athiest Centre at Vijayawada he said that countries like USA and USSR had already stationed factory ships in Antarctica to process the catches, particularly krill. He said that krill was being exploited on a massive scale by these countries. He said that whales in Antarctica region were very huge, weighing about 150 to 200 tonnes each. Even the whales were being exploited, he said. He recounted the 11 day stay of 21 member Indian team consisting scientists from all walks of sciences and said that the expedition to the Polar Circle provided memorable moments in their lives. He said that there were lot of things to be exploited besides fish on the Antarctica. He narrated the activities of the team during their stay on Antartica and said that the thrilling part was the discovery of a three kilometer high mountain lying 2.5 kilometers below the water surface. He said that the mountain was named as Indira Mount.

* * *

FISHERMEN ROW FOR HONOURS ON CHILKA

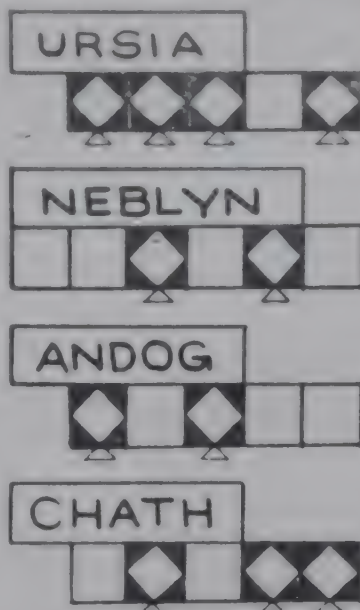
For the first time in the lives of Chilka lake rishermen the Government of Orissa has added a tinge of fun and competition among fishermen by organising a regatta. The regatta was participated by the fishermen from the Chilka lake area. It was organised by Orissa state tourism department and Indian Navy jointly.

Mr. Janaki Ballabha Patnaik, Chief Minister of Orissa in his

FISHERMEN'S JUMBLE

These words are as unsorted as a fish haul. Restore them to the correct order, with each letter to a square. After this, arrive at

the answer by adjusting the letters in the 'fishes', deriving clue from the sketch alongside. Answer on p. 53



inaugural adress sadi that the Government of Orissa would do all its best to provide better amenities to the fishermen of Chilka Lake area.

Mr. M.K. Roy, Vice Admiral and Flag Officer, INS Chilka presided over the function.

Mr. Advita Narayan Tiwari, Secretary, Orissa state Tourism Department expressed his thanks to the local fishermen who had taken part in the regatta. This would be an annual feature.

The regatta was attended by a huge number of spectators.

* * *

A.P. GOVT. PROVIDES 50 PER CENT SUBSIDY TO FISHERMEN

Mr. P. V. Raghavulu, Minister for Fisheries, Employment and Training, Government of Andhra Pradesh, while addressing a meeting of the members of Nagarjuna Sagar Fishermen

Co-operative Society recently said that a subsidy of 50% would be provided to the fishermen for the purchase of nets and coracles.

He promised that the demand of the fishermen for issuig permis-sions for fishing in the Nagarjunasagar would be considered by the Government.

The minister promised the fishermen that all their genuine problems would be promptly attended to by the government.

Mr. Raghavulu also announced that the Government of Andhra Pradesh had decided to help the fishermen who were hit by the cyclone in Nellore district by providing nets on 75 per cent subsidy.

The Assistant Director of Fisheries Mr. Krishna Murthy and other officials apprised the minister of the current state of fishery development in the area.

DR. GUHA GRILLED

Readers may recall the reactions and statements issued by the public and the scientists over the blinding of lobsters for achieving their faster growth by the scientists of the Central Marine Fisheries Research Institute, Cochin.

Of late, there has been considerable reaction on the experiments being conducted on the lobsters. Eyes are being plucked out of the lobsters. Perhaps it is for the first time that general public have shown interest in the experiments that are conducted on lobsters.

In letters to the editor published in *Hindu* recently, Mr. A.K. Narayan from Bangalore was 'shocked' and said that he saw 'Nazi' element in the attitude of the Indian scientists. He was referring to the explanations given by Dr. Guha Prasad, who had spoken on the matter recently at Madras.

Mr. R.K. Narayan suggested that some marine biologist should be reborn as a lobster so that he might have first hand knowledge of the pain that would be felt when blinded.

In another letter, Mr. N.Y. Sastry, from Madras was 'astonished' on Dr. Guha Prasad's explanation on blinding of lobsters. He said that by denying basic pain and pleasure to lower animals we were destroying the distinction between living and the non-living creatures.

In Mr. Sastry's words: 'The question, "Do lobsters feel pain when blinded", is astonishing and is raised perhaps to avoid objections to a profitable trade but cruelty never pays in the long run. All sentient creatures are so bound that man's cruelty to men results in callousness to animal and this in turn makes human suffering. This has gone for 10,000 years'.

TAMILNADU FISHERIES CORPORATION'S CHARTER PROPOSAL

It is understood that the Tamil Nadu Fisheries Corporation has applied to the Government of India for permission to charter 5 pairs of Taiwanese bull trawlers from Messrs. San Hai Trading Company, Singapore. Although it is a self-contained application, it appears that it is not in the form prescribed under the rules notified by the Ministry of Agriculture on 26 August 1982.

* * *

EXODUS OF SKIPPERS AND ENGINEERS TO NIGERIA

Dr. Mahajan, General Manager, Ocean Trading (Nig) Ltd., Lagos, Nigeria, was in India recently to recruit skippers for the manning of the vessels of his company. He selected six skippers and also issued appointment letters. The appointed skippers are: 1) Mr. Mayavan of Union Carbide, 2) Mr. S.A.P. Fernando of Vani Marines Pvt. Ltd., 3) Mr. N.S. Pillay of Srinivasa Sea Foods Pvt. Ltd., 4) Mr. Arvindakshan of Tata Oil Mills, 5) Mr. Amul Raj of Tata Oil Mills and 6) Mr. Rasheed of Britannia Sea Foods. It is understood that there is considerable demand for Indian skippers in Nigeria as those of the previous batches working in Nigeria had shown good results. Some have also been appointed by the company as engineers on their fishing vessels. These include Mr. V. Ratnam of M/s Srinivasa Sea Foods, Mr. Nandkumar and Mr. Ashokan from Tata Oil Mills, Mr. Radhakrishna from ITC and Mr. Gynanasundaram from APFC.

* * *

MEETING OF REGIONAL COMMITTEE

The meeting of the regional committee consisting of representatives from Punjab, Haryana,

Himachal Pradesh and Jammu & Kashmir, Madhya Pradesh, Rajasthan, Delhi and Chandigarh met in New Delhi in the 1st week of November 1982. The purpose of the meeting was to evaluate the progress achieved under the various plan schemes and to impart the required reorientation. Fisheries development was an important subject discussed at the committee meeting in which the Directors of Fisheries or their representatives from various states participated. It is understood that the progress achieved in Haryana was much appreciated. Action lines were suggested for being taken up in the various states for increasing fish seed production through the availing of the new schemes introduced by the Ministry of Agriculture recently. Emphasis was laid on setting up of hatchery units.

* * *

CIFNET, VISAKHAPATNAM

The Port Trust, Visakhapatnam, handed over a site measuring over Ac. 3.00 in extent to CIFNET for the construction of the required buildings for housing the unit. It is understood that the Ministry of Agriculture has requested the port trust to undertake the construction work. In regard to equipping the unit, required furniture has recently arrived. Machineries for the workshops have been received. The installation work is expected to be taken up shortly.

The classes are being conducted by the unit on the first floor of the Administrative building in the fishing harbour. This arrangement is likely to continue till the new buildings are constructed. There are 16 trainees in the first batch in the fishing second hand course and 14 trainees in the engine driver course. This course will come to a close soon. It is stated that a notification inviting

applications for the second batch of trainees will be issued by the CIFNET soon.

* * *

ENVIRONMENTAL IMPROVEMENT AT SASSOON DOCK, BOMBAY.

At the instance of the prime-minister, steps are under way to improve the surroundings of Sassoon dock. Besides keeping up the place clean, a garden will be laid to improve the environmental conditions.

* * *

NORAD'S HELP IN MAINTENANCE OF FISHING VESSELS

The Norwegian Agency for International Development (NORAD) has made an offer to assist India in setting up facilities for repairs and maintenance of fishing vessels. This subject was discussed between a visiting NORAD team and officials of the union department of agriculture recently. It is expected that a substantial assistance in the matter will be forthcoming from NORAD.

* * *

NEW SCHEMES FOR UPLIFT OF FISHERMEN

There appears to be a strong feeling in the higher levels in the union department of agriculture that not much is being done in regard to the socio-economic uplift of fishermen and for the development of fish culture, these subjects being in the state sector. It is felt that complacency on the part of the centre in regard to these subjects merely on the ground that these are state subjects is not justified. Accordingly, it is understood that schemes with substantial outlays are being drawn up in the fisheries division of the department of agriculture, aimed at assisting the state governments

in these spheres. It appears that there is marked reduction in the interest of the department for the development of marine fisheries.

* * *

BRACKISHWATER FISH FARMING IN HARYANA

Large tracts of Haryana have ground water having salinity ranging from 5 to 40 ppt. The Central Inland Fisheries Research Institute, Barrackpore, conducted a survey of the area and recommended to the state fisheries department to undertake brackishwater fish farming utilising the ground water. On this recommendation, the ministry of agriculture has given a target of 10 hectares to be brought under brackishwater culture. As a follow up, the state fisheries department has constructed ponds and set up a laboratory at Sultanpur in Gurgaon district. The department has now made arrangement for getting seed of tiger and white prawn and chanos from Kakinada in A.P.

* * *

NYLON TWINE DISTRIBUTED IN ANDHRA PRADESH

The Chief Minister of Andhra Pradesh visited Nakkapalli, Yelamanchili and Bhimilipatnam in Visakhapatnam district on 7 and 8 November. During the visits he distributed nylon twine to several fishermen. Mr. G. Paparao, Deputy Director of Fisheries, and Mr. M. Muralimohanrao, Asst. Director of Fisheries, Visakhapatnam, accompanied the Chief Minister and explained matters pertaining to socio-economic uplift of fishermen in the district.

* * *

A.P. HOUSING PROJECT FOR DISPLACED FISHERMEN'S FAMILIES

Mr. B.N. Raman, Chief Secretary to Govt. of A.P. laid foundation

stone for a Housing Project for pucca houses for displaced fishermen's families of Gangavaram village in Visakhapatnam district on 22 November 1982, at Dibbapalem rehabilitation centre. All the fishermen beneficiaries, numbering about 1000, are those who were displaced from Gangavaram village on account of the setting up of the Visakhapatnam Steel Plant. Each of these houses would cost about Rs. 12,000. The Chief Secretary also distributed nylon twine to 150 fishermen. Each beneficiary received twine worth Rs. 1500/-. The rehabilitation centre will have electricity and drinking water supply.

* * *

HATCHERY IN U.P.

The U.P. Matsya Vikas Nigam Limited, Lucknow is making fast progress in regard to the construction of a fish hatchery at Kolahar, situated at about 10 km. from Gomat on Raya-Kher road. The outlay on the project is Rs. 14.40 lakhs. Apart from the construction of ponds and bundhs (Rs. 2.20 lakhs), there will be water regulating structures in brick work and cement concrete (Rs. 3.00 lakhs). Buildings for various purposes will be constructed at a cost of Rs. 6.50 lakhs. The hatchery complex will be surrounded by a fencing which would cost Rs. 1.5 lakhs. There will also be 2 deep water wells which will be constructed at a cost of Rs. 1.20 lakhs. The work is expected to be completed by March 1983.

* * *

COLD SEA WATER FROM DEPTHS FOR FISH PRODUCTION

There are proposals to set up an experimental ocean thermal energy conversion plant at Kavaratti and minicoy islands of Lakshadweep. Under this project the cold water from a depth up to 1000 m will be pumped on to the shore mainly for production of electricity, utilising

the temperature difference between surface water and that at depths. The cold water from the deeps will be discharged into a lagoon to help fishermen increase their fish catch.

There are other sites at Marakkanam in Changanpattu district, Cuddalore in South Arcot District, and Kulshekharapattinam in Tirunelveli district of Tamilnadu suitable for setting up similar plants. A part of the Kerala Coast, north-west of Cape Comorin, is also suitable for the purpose.

The advantage of the projects from the point of view of fishermen is that fish will be attracted from the nearby areas to feed upon the plankton pumped up with the cold water from Ocean deeps. The power generated from the plants will also be useful to provide lighting to the houses of poor fishermen along the coast line.

COAST GUARD STATION AT VISAKHAPATNAM

There is a proposal to locate a coast guard office at Visakhapatnam, according to Vice-Admiral M.R. Schunker, Director General of Coast Guard. At present there are regional offices of the coast guard located at Madras and Bombay. There is also a station of the coast guard at Haldia.

There are at present 17 patrol vessels owned by the coast guard. There are plans for the acquisition by 8 more vessels soon, 2 each of which will be constructed at Garden Reach Workshop, Calcutta and M/s. Mazgon Docks, Bombay. 4 more vessels are proposed to be imported. In addition to the existing 2 Helicopters it is proposed to acquire another soon. According to Vice-Admiral Schunker, while there are no financial problems to strengthen the coast guard, there

are difficulties in regard to personnel to man the activities. He expressed his gratefulness to the navy for providing the necessary personnel support. He said that, owing to the activities of foreign fishing vessels, the nation was losing about Rs. 350 crores annually.

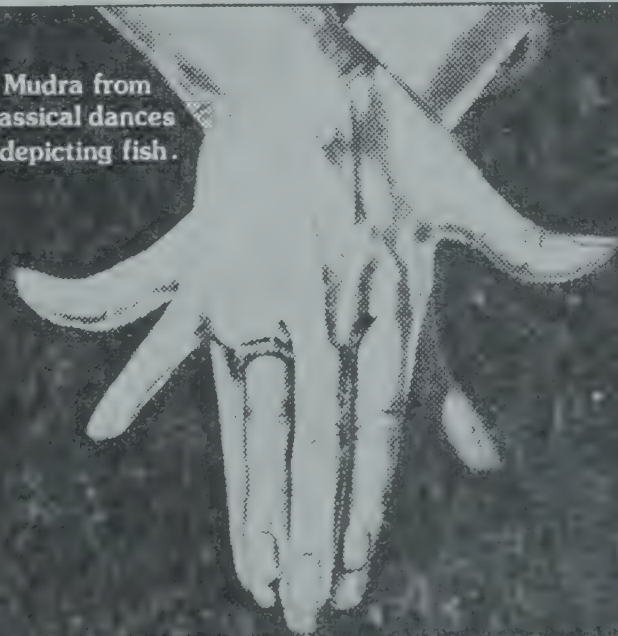
* * *

EFFORTS AT JOINT VENTURES WITH JAPAN

The Government of India has recently sounded Japan on the shape of the joint ventures to exploit the marine fisheries resources of the Indian exclusive economic zone. It had been pointed out to the Japanese side that such joint ventures will be mutually advantageous. It was also mentioned that the Indian regulations permitted substantial concessions to the foreign parties entering into joint ventures in deep sea fishing. Guidelines for

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**THE MARINE PRODUCTS
EXPORT DEVELOPMENT
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chartering fishing vessels by Indian parties were also liberalised.

The Marine Products Export Development Authority made proposals to the Japanese authorities outlining the areas of assistance required which included technical and other forms of assistance. It is hoped that Japan would favourably react to the proposals particularly as that country's fishing areas have shrink considerably.

Japan imported over 168,000 tons of shrimp in 1981, 24% of which, coming to a little over 40,000 tons, was from India.

The Indian side proposed that Japan may field an import mission to explore the possibilities of Indian exports of Marine Products other than shrimp to Japan. 20 such varieties had already identified. The specific assistance sought was that Japanese may train Indian fishermen and also supply deep sea fishing vessels, besides extending technology in processing.

Japan financed the construction of 2 fishing vessels for India in 78-79. These were meant for survey and training. A proposal has now been made for the training of Indian personnel by Japanese experts for putting these vessels to optimal use.

* * *

INDIAN PARTICIPATION AT 5TH TOKYO SEA FOOD CONFERENCE

The 5th International Sea Food Conference was held in Tokyo from 25 to 28 October 1982. This Conference was considered to be an important international forum where those interested in sea food trade from all parts of the globe gathered. India was

represented at the conference by Dr. K. P. P. Nambiar, Resident Director of MPEDA in Japan and Mr. V. S. Prasad Vice-President, Association of Indian Fishery Industries, Mr. Tetsuo Hosaku, Technical adviser from the International trade centre, Geneva, attached to MPEDA's office at Tokyo also participated in the conference.

* * *

DRIED FISH EXPORTS TO SRI LANKA

Readers are aware that recently an Indian Delegation sponsored by the State Trading Corporation of India visited Sri Lanka with a view to developing an understanding between the two countries in regard to the trade. It is understood that an agreement has been reached on the following points:

1. The STC, Madras will arrange for all suppliers of dried fish in Tuticorin and in the neighbouring areas who will function under the coordinating role of STC.

2. The cooperative wholesale establishment (CWE) Colombo, would open a latter of credit in the name of the state trading corporation on 80/20% basis.

3. The Indian side will not provide any bank guarantee.

4. CWE will speed up unloading of consignments in Colombo.

5. Weighment and grading of consignments will be carried out to the extent possible within 7 days in respect of consignments upto 5000 kg. and larger consignments within 14 days.

6. Unsettled disputes will be referred to the Deputy Chairman of CWE and the STC's purchase manager in Colombo.

7. Final payments (20%) will be made by CWE within 45 days of arrival of each consignment at CWE godown.

8. The number of random samples will be to the extent of 5% of the number of bundles in the consignment.

9. CWE will give 30 days notice if there is any substantial change in the quantities or variety of dry fish to be imported.

10. Prices for the various varieties of dried fishes to be imported into Sri Lanka will be increased substantially.

11. Price revision will be made annually by mutual arrangements.

* * *

FIELD TRAINING AT PARADEEP FOR PRAWN FARMERS

The MPEDA regional centre, Orissa organised an intensive training programme on prawn seed transportation and stocking from 12-15 October 1982 at Paradeep. 10 prawn farmers and 2 prospective entrepreneurs participated in the training camp which was conducted by Mr. R. N. Padhi, Deputy Director. The course included instruction in scientific prawn farming.

It is proposed to conduct two more such training courses in Orissa, one at Astarang and another at Adhuan in the near future.

* * *

MULTILAYER PLASTIC FILM PACKS FOR PACKING OF SEA FOODS

M/s. NMJ Multiplast Ltd, Delhi have recently introduced multilayer plastic film which is claimed to be well suited for packing of

sea foods. The material consists of nylon-ionomer films. It is stated that the nylon provides high tensile strength, abrasion resistance and oil and oxygen barrier properties. The ionomer which adheres to the nylon acts as a heat seal.

The manufacturers claim several other advantages from the conventional packing in tin containers which include cost reduction by using the nylon ionomer film for packing of sea foods. The address of the firm is: NMJ Plastic Ltd., Qutab Road, (North), Delhi 110 006.

* * *

NEW PACKAGING MATERIAL BY HOECHST DYES AND CHEMICALS

The wide scope for the use of 40 guage 'high molecular weight high density polyethylene film (HMHDPE)' as packaging material in frozen sea food industry as a substitute to 100 guage low density polyethylene film was highlighted at a seminar organised by M/s. Hoechst Dyes and Chemicals Ltd. at Cochin. According to the company cost reduction in packaging of frozen sea foods can be achieved by the use of HMHDPE film compared to the conventional film because of the former's larger area per unit weight, even though cost for unit weight of a new film is about 67% more than that of latter. It is however mentioned HMHDPE film has low tearing strength requiring greater care in handling.

Answer to Fishermens Jumble

words: ARIUS, BLENNY, GONAD, HATCH

Solution: SEA RANCHING

Answers to Quiz

1. a, 2. a, 3. b, 4. a, 5. b, 6. b, 7. c, 8. b, 9. a, 10. b, 11. c, 12. a, 13. b, 14. c, 15. b.

INTERNATIONAL

SURVIVAL AT SEA IS KID'S STUFF WHEN TRAINED

Each year thousands of people die in accidents at sea, but in most cases, according to Institute of Survival Technology at Nova University, Florida it is due to the lack of victim's knowledge about themselves at the sea. It says that many do not know the use of floatation and survival equipment. Other reasons attributed by the Institute are that the equipment in most cases is of poor standard and victims lack knowledge as to how to assist their own rescue.

But the safety on the seas now a days has become a kid's stuff for those who are properly trained in all the technicalities in handling the equipment and knowing the nature of the sea.

Nova University trains people in this art of survival in regular courses on how to improve the individual's capabilities when in danger at sea.

The course's duration is only one day.

The training includes phases of pre-abandonment, abandonment, survival in water and rafts, techniques of attracting the rescuers by use of various pieces of equipment, use of various types of signals, how to make drinking water, helicopter pickup, assisting panic stricken victims, and many many other aspects that were studied from the thousands of incidents that happened on the sea.

The training is given at Institute's controlled salt water training area.

PAMBALA BRACKISHWATER TEST STATION

The newly constructed brackish-water fish breeding and experimental station at Pambala, Sri Lanka is to achieve further progress in the field of fisheries, according Mr. Festus Perera, Fisheries Minister of Sri Lanka.

A similar station constructed at Mawanella had to be closed down due to non-suitability of operations. Hence the Fisheries ministry of Sri Lanka has shifted the station to Pambala, where better results are hoped to be achieved.

* * *

BOOST FOR PRAWN FARMING

In order to boost prawn production, the Fisheries Director General of Indonesia has been keenly encouraging prawn farming in the country.

A five year programme activated in 1979 for massive culture of prawns, has been showing a steady progress. The plan aims to bring 131,000 ha under prawn culture.

So far 31,000 ha pond area has been developed in Java and South Sulawesi.

Technical assistance and other services are being rendered by the Government of Indonesia to thousands of entrepreneurs.

Modern methods are being adopted which could result in a production of 3000 kg. per ha per annum. The existing production rate is 600 kg. per ha. per annum.

The breeding capacity has been increased to supply seven million seeds to farmers in a year. It is estimated that the prawn production in Indonesia would increase to 55,000 tons by 1984 from the present production of 25,000 tons per year.

* * *

HATCHERY ON MOUNTAIN TOP

The Ifugao tribes men of Philippines have built a fish hatchery at a height of 4,500 ft. on the Mount Mayoyao in the province of Ifugao.

Covering an area of 5000 sq. meters, the hatchery was funded by Asia Foundation, US Peace Corps, Catholic Relief Services and the provincial government.

The construction was assisted by the Ministry of fisheries and Aquatic Resources of Philippines. It took two years for the tribesmen and the labourers to construct the hatchery. Water is being supplied from Chaya spring and the nearby irrigation project at Lamagan.

* * *

FISH PRODUCTION IN ABANDONED CANALS

The Government of Pakistan has planned to utilise 27 abandoned canals in Punjab province for fish culture.

It is estimated that by this project the production in Punjab province may increase to 12 per cent. The present rate of production is 11,500 tons per annum.

The siltage and thickly grown bushes in the water have been a problem in bringing the canals into usage. Now it has been decided to dredge the canals and start

growing fish in them. A survey has already been organised to locate suitable areas first.

The government is also providing bulldozers and electricity at very cheap rates to the fish farmers who are interested in ponds along side the canals.

* * *

POLITICS, POOR TRANSPORT BUNGLE AFRICAN FISHERIES

When an amount of 11 million dollars were sanctioned by the World Bank for the development of Fisheries in Kenya, it was doubted if the amount would go in the proper direction. It happened in the past many cases in the developmental activities in African continent.

Politics, according some sources are the major reason for poor development of fisheries in the African countries.

Besides, though there is great potential for local output, the transport and poor facilities for storage of the fish has caused marketing problems. Distribution is a great problem in Africa according to surveys conducted by the UN organisations.

While the total food production in Africa has reduced by 10 per cent during the past two decades, the problem of feeding the poor millions with protein food has become inevitable, according the Food and Agriculture Organisation. Uganda's Lake Victoria, Zimbabwe's Lake Kaika and Ethiopia's Lake Tana, though are very massive in size, the production has been very negligible. The developmental projects aimed at increasing the fish production in these areas has been a flop, due to mismanagement, lack of technical education and ever changing political regimes.

Fisheries had always been the first victim whenever an African nation fell into economical emergency. Funds allotted to fisheries were very little and they were first to be cut whenever there was an emergency.

However, nations like Nigeria, Sierra Leone, Namibia and Somalia are showing keen interest in making fisheries a dynamic tool for providing protein foods to the starving millions.

Projects on fish filleting, fish meal factories are now coming up in considerable numbers in these countries. Transport system and storage have been given an important treatment in the developmental activities. Somalia and some the countries are opting for joint ventures to boost up their fish production.

* * *

JAPANESE PRIME MINISTER REQUESTS INDONESIA PRESIDENT TO RELAX RULES

In a personal message sent to the Indonesian President, the Prime Minister of Japan has requested for liberal attitude for fishing in Indonesian waters by Japanese fishing companies having joint ventures with Indonesian firms.

Indonesia has banned trawling by Japanese trawlers in its waters totally from next year.

No decision on the Japanese Prime Minister's request has been taken by the Indian Government so far.

* * *

JETRO SEMINAR SUCCESSFUL

A seminar on 'Marine Products Import Promotion into Japan' was organised by the Japan

(Contd. on p. 56)

HERE is an estimation of what stars say about fortunes of fishery industrialists, managers and operators for January 1983.

ARIES (Mar. 21 to Apr. 20) :

You will make determined efforts to move along a course knowing well that there will be hurdles and believing that you can surmount them. The chances are that you will succeed. You will hear some good news which will enable you to take an important personal decision. Do not fall into the trap of others who may propose a scheme that would appear to be very sound from the outside. You will gather lot of information which will help you in shaping your career or business matters, if you make allowance for differences of opinion in business or career matters. Do not undertake any important plans in the last week. Good fishing can be expected in the middle of the month.

TAURUS (Apr. 21 to May 21) :

You may have to part with something valuable to others during the month. Do this without any ill-will or reservations. You may face some serious problems in the second week. Adjust your affairs suitably. You may indulge in entertaining your friends in the third week. An increase in income can be anticipated from 22-28. Extend all cooperation to those concerned. This will enable you to strengthen your professional interests in your organisation. Good fishing can be expected towards the end of the month.

GEMINI (May 22 to June 21) :

Affairs around will enable you to act with confidence and enthusiasm. You will be able to display your inner talents. In the second week you may face certain difficulties. You can get over them by proper evaluation of situations. Professional difficulties can be got over by adopting a constructive approach and working conscientiously. In the third week you may face certain health problems. Thereafter there may develop certain distributing situations. There can be money problems. By avoiding impulsive actions, you can yet over all the difficulties. By the end of the month things should stabilise. Fishing will be average during the month.

CANCER (June 22 to July 23) :

You are likely to visualise a new project. This will have potential of being developed into an important one. With resolve, you should be able to realise your ideas. You will be able to negotiate business and professional matters with considerable felicity. You are advised not to undertake any travel during the second week. Be careful in your dealings with your superiors. You may have to part with a sizeable amount of money reluctantly during the month. Fishing results are not likely to be upto your expectations.

LEO (July 24 to Aug. 23) :

You will start off very well during the month. You will develop the

right understanding about men and matters around you. You are likely to develop good plans for your betterment. Maintain good relations with your friends, while at the same time watching each one of them. Avoid tensions. Towards end of the month you will accomplish a job with distinction. New friendships may develop. There can be difference of opinion with your higher authorities. You have to deal with them tactfully. There can be health problems. Good fishing can be expected from 22-28.

VIRGO (Aug. 24 to Sept. 23) :

Your professional activities will take an advantageous turn in the beginning of the month. You are likely to be in the forefront in your limited circle, from a professional angle. Your popularity is likely to increase. However be careful not to over-act. There will be persons who will try to extract money from you. Be careful. Avoid journeys in the third week. Towards the end of the month, there can be some cause for worry. You can get over this by developing a peaceful attitude. Good fishing can be expected around 22.

LIBRA (Sept. 24 to Oct. 23) :

First week will be extremely expensive. You will endeavour to fulfil your promises to others at this time. There may be some set-backs in your professional or career affairs in the second week. Avoid all bad elements. In the third week there will be considerable improvement in your relations with your higher authorities who take note of your abilities at work. Do not undertake any travel and also do not sign any important documents in the fourth week. A very good friend of yours may turn against you. Deal with

the situation carefully. As the month draws to a close matters will look up. Improvement in fishing can be expected towards the close of the month.

SCORPIO (Oct. 24 to Nov. 22) :

The month may start with domestic and financial difficulties. Professional matters will show encouragement. Avoid hectic activities. By middle of the month you will be able to receive appreciation from your higher authorities for your good work. Avoid hasty action concerning money matters. Do not believe those who try to influence you with false promises. Towards the end of the month you may have to shoulder new responsibilities. Go ahead in accepting them. Help and goodwill will be forthcoming from friends. Improved fishing can be expected from 15-21.

SAGITTARIUS (Nov. 23 to Dec. 21) :

Careerwise, better opportunities can be expected. There will be good news. You have to plan your spending carefully. You may encounter coolness from important persons when you approach them. Do not get worried over this. Reduce traveling as much as possible. Fishing results are not likely to be upto your expectations.

CAPRICORN (Dec. 23 to Jan. 20) :

There will be certain favourable developments which keep you in a good mood. The developments will require harder work from you. It is possible that certain things will be done behind your back. Keep a watch over these and institute remedial measures. There will be encouragement in professional matters. Financial position will also improve. You may hear some surprising

news towards the end of the month. Good fishing can be expected from 15-21.

AQUARIUS (Jan. 21 to Feb. 19) :

Certain plans you have in mind will materialise with considerable difficulty. If you are thinking of changing your job this can be done during this month. You will travel a lot during the month. You may feel disappointed that those around you are not appreciative of your ideas. Do not do anything important in the third week. Some matter that has been causing you worry is likely to get resolved during the month. In the last week you may face a difficult situation. Treat this lightly and allow it to pass. Fishing results are not likely to be upto your expectations.

PISCES (Feb. 20 to Mar. 20) :

Some of your friends may seek your help to resolve some of their problems. Things should be normal in your job. Try to be as decisive as possible in your dealings. You will have a busy time in the second week. However do not sign any important documents during this period. Do not be perturbed by any criticism. You may feel depressed that your approaches to influential people are not bearing fruit. Do not get upset over this. Ignore all minor developments. Towards the end of the month there will be good news. Finance matters will be under control. Fishing may improve in the second fortnight.

News International (Contd. from p. 54)

External Trade Organisation (JETRO) during the October/November, 1982 at Tokyo.

The delegates nominated by the Government of India, Mr. I. A.

Khan, Director, Ministry of Commerce, Mr. C. Chelvan, of Chennais, Cochin and Mr. Chelvan, Thomas of Papani, Pondicherry attended the Seminar.

* * *

FAO LIAISON OFFICERS MEET

National liaison officers from the members countries of FAO SIDA BOBP programme met in Madras from October 28 to 30 to examine the draft report of the Impact Review Mission fielded by the FAO. This meet was to review the activities of the FAO. The Project would come to an end by 1983 and the possibilities of continuing this further had been under serious consideration by the FAO and the member countries. It is likely that the period of the Project will be extended beyond 1983.

* * *

TURKS LOVE DOLPHINS

Recently there has been a mass protest over the killing of dolphins and porpoises by the fishing industry in Turkey.

When a big stock of dolphins were slaughtered to be converted into chicken feed there were mass demonstrations by a protest group which was opposed to the killing of these lovable sea creatures.

According to the statistics, about one lakh dolphins and porpoises were killed in Turkey during the last two years.

FISH SUPPLY IN AUSTRALIA

About half of the domestic fish requirements of Australia are met by imports. In 1981 Australia imported about 70,000 tonnes of marine products, valued at 189 million A \$.

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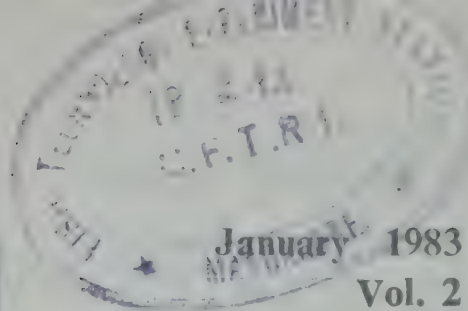
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Fishing Chimes



January 1983
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No. 10

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Letters to the Editor

Dear Sir,

The article by Dr. Gokhale (August 1982) in 'Science To-day' is of great interest to us. The declaration of Exclusive Economic Zone extending 200 nautical miles from the coastline does not mean that this part of the sea was not available to the Indian fishing industry for exploitation before.

The question "Are our deep sea's really rich?" is irrelevant at this stage. Dr. Gokhale agrees that even our inshore resources can yield another million tonnes of fish. While advocating that this area should be fished by small and medium fishermen with existing technology and equipment, he does not seem to care about the tragedies involving fishermen at sea, for these craft have been carriers of death for poor fishermen. If these tragedies can be avoided only through introducing fishermen to upgraded technologies that would better their lot and join the mainstream of society.

Dr. Gokhale asks another question: how will they catch more fish when they are unable to get a good price for the existing catch? Answering this question, the learned writer declares that the chartered (Foreign) vessels have been taking away the entire fish catch to their countries. What are they supposed to do? Dump it in sea, the way vessels operating from Visakhapatnam in search of shrimps throw away the major portion of the catch as they find it uneconomical to land it? The very well-compiled data of the

article confirm that the present policy of the government, which allows the charter of foreign vessels to get factual data, train Indian personnel and to develop the indigenous fleet, apart from locating untapped foreign markets, is the boldest and the best decision.

The International Conference on Deep Sea Fishing held in Vigyan Bhavan, New Delhi, during June 1982 attracted a lot of attention from the press. The criticism levied against the government, though justified, does not take into account the great work done by the Union Department of Fisheries in the last six months. It is strange that experts venturing to suggest the means for development of fisheries invariably come to the conclusion that this could only be done by giving more incentives to bigger houses, soft loans inclusive.

Many advocate the concept of the efficient management by larger houses and private industries: if these institutions are so efficient, why are there so many sick industries in India today? In the case of deep sea fishing it has proved beyond any doubt that they have just failed miserably.

The time has come to examine the problem in its proper perspective. The attention of poor fishermen should now be diverted to more lucrative, less capital-intensive methods of fish farming which will eventually yield more fish at much less cost. Only professionalism, technology and techniques of finding fish can

ensure growth and promote deep-sea fishing.

Experts, who advise Indian entrepreneurs to get the best out of this great challenge when the nation has not even started pelagic fishing commercially, should be thrown overboard. We must find new experts capable of finding viable ways to catch fish and utilise them for optimal returns. The nation's efforts should be directed towards development of infrastructure for storage, transportation and marketing of the catch.

S. M. Shukla
New Delhi

* * *

Dear Sir,

The article entitled "Over Shrimping-Myth and Reality" by Mr. Ramdas in your Oct. 1982 issue should prove to be an eye-opener to the Government whose present policies have a restrictive effect on shrimp fishing. As has been very well pointed out by the author, the Association of Indian Fishery Industries is dominated by larger houses such as Union Carbide, Tatas and I.T.C. who do not seem to have any real desire to promote the deep sea fishing industry as a national programme. These and a few others have not been able to prove their capabilities in fisheries management. While I.T.C. has closed down its operations, Tatas are conducting their operations under police protection. There is so much of dissatisfaction among the floating staff of Union Carbide.

It was pointed out by me in 1975 itself that only small entrepreneurs and technocrats can give a boost to deep sea fishing industry and establish it on sound lines. Our experience so far reveals that

managers who have no fishery background will not be able to run the deep sea fishing industry on sound lines. Britannia is able to run its fisheries division successfully because it is manned by a professional manager with years of fishery background.

I appeal to the government to encourage technocrats who alone have the inclination to work for the real development of deep sea fishing industry. The field is not only a challenge to them but it gives them the means of livelihood. For the others such as large houses it is just another line and they are not bothered whether they run it successfully or not.

**N. Venkateswarlu (Capt.)
Visakhapatnam**

* * *

Dear Sir,

After having a wonderful time at Delhi, virtually patting my back for having done a good job as a commentator during Asiad '82, I was off for a great surprise, surprisingly from your magazine. My name has appeared in your magazine, while describing the affairs of Marshall Seafoods as a fleet Manager, who had resigned. In this context please add these lines to your news that I worked in MSF as Executive Asst. to Directors, looking after entire division of seafoods and having wide range of duties like organising, staffing, scheduling, public relations, planning and marketing and hence managing fleet was one of my functions, as the previous fleet manager, responsible to me, Capt. Deshmukh had to resign.

Knowledgeable circle in Vizag will admit that it was me who organised many things for MSF, whole plant planning was mine, all appointments including labour contractor, were done by me and even EIA & MPEDA will testify introduction of Brand

"CHOWHAN" was initiated by me to all Japanese trading houses. More over your mention of MSF imitating style of UCIL is totally baseless. It was MSF who allowed (during my time) participation of skippers, Engineers in decision making, whereas this kind of thing does not even exist in UCIL. MSF was led by a non-technical person like me having no previous experience with fishing. All directors were new to line and every job done was commendable. Your correspondent should have known that there is and will always be a "difference in style of functioning" between a Multinational and a private Indian company.

A word on floating staff. 90% of them do not even carry a proper educational background but are highly paid. It is high time they realise that their role is very important, for this industry to remain in proper shape and light, instead of quarreling and shouting slogans against management as seen with MSF. (During my absence).

Kindly also allow me to thank you and everybody in fishing industry for having given this youngest executive of fishing industry all time cooperation, guidance and affection which were certainly of great help for MSF whether one admits or not. Lastly, I have had enough of seafoods now. It is time for me to bid farewell to fishing and concentrate on commentaries and a good job with a good company. After all I have got International pool of All India Radio, and highest ranking for Commentators.

**Rajesh Tewari
Calcutta**

* * *

Dear Sir,

In 18th line in my letter to Editor published in Fishing Chimes of November 1982 issue 'per

farmer' has been wrongly printed in place of 'per acre'.

A corrigendum may kindly be published.

**R. N. Singh
Chief Executive Officer
Fish Farmers' Dev. Agency
Saran, Chapra**

* * *

Dear Sir,

The following points may be placed in your magazine.

1. NIFCO is facing financial crisis since one year and the company stopped the trawler operation.
2. All the five deep sea fishing trawlers are lying in the jetty for about one year. NIFCO missed one good fishing season.
3. NIFCO has retrenched all the crew members, captains and engineers and settled their final accounts.
4. Matter of surprise is that the directors of the company are neither selling the company to others nor trying to run it.
5. Here we have to say that in 1955 NIFCO was the first public limited company in India in fishing industry. After 27 years, the company is going to be closed.
6. Now the Government of India is giving good facilities to fishing industry.
7. The directors of NIFCO are no more interested to run the trawlers. They are thinking of getting profit without running the vessels. We think nowadays it is not possible.

8. Government should find a way to make NIFCO vessels operational. The vessels are national assets and cannot be left idle.

NIFCO Employees of Vizag

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1982 In Retrospect

The fishing industry can look back to the events that took place in 1982, with mixed feelings. A non-professional approach to marine fisheries development at the centre, which led to a severe retardation in the introduction of new fishing units was perhaps the main highlight of the year. The deep sea fishing industry had also the misfortune of bearing with the unjustified official view that Indian waters could not sustain any more trawlers for shrimping. An all round mood of disenchantment and depression in the deep sea fishing industry, particularly among larger houses, was evident during the year. While I.T.C. withdrew from the field, Britannia decided to do so, once they can find buyers. The first organised fishing company in the country, The New India Fisheries Ltd. was on the verge of closure. The unceremonious application of guillotine to the 1977 import scheme was glaringly evident. The close of the year had seen the issue of a fresh notification from the Central government calling for applications for import of vessels, provided the same cannot be constructed at indigenous shipyards. An autocratic and arbitrary approach by the centre to the determination of amounts of bank guarantees in respect of vessels to be chartered with reference to each case was another development in the year.

GOOD SHRIMP FISHERY

On the marine side, there was a good shrimp fishery during the year on north-east and north-west coasts which made up losses incurred by the various enterprises during the previous years, substantially. There was an increase

in the exports of marine products. During Jan-July 1981 the exports were of the order of Rs. 160.45 crores. During the same period of 1982 the exports went upto Rs. 187 crores. There is no doubt that the overall performance in the marine products export sector in 1982 would be far above the achievement in 1981. This is a matter for rejoicing.

INTERNATIONAL CONFERENCE

An 'International Conference on Deep Sea Fishing' was held in New Delhi during 23-25 June 1982, under the auspices of the Association of Indian Fishery Industries in cooperation with the Ministry of Agriculture and the Marine Product Export Development Authority. The Conference was well attended, particularly by representatives of fishery enterprises in various foreign countries.

There was the encouraging news towards the close of the year that the Exploratory Fisheries Project located promising fishing grounds in the Bay of Bengal adjacent to south Andhra coast.

INDO-DANISH PROJECT

The foundation stone for the Indo-Danish Fisheries Project was laid by Mr. Kagodu Thimmappa, Minister for Public Works, on 22nd May, 1982 at Tadri in North Canara district. of Karnataka.

ROYCHOWK BECOMES OPERATIONAL

The Roy Chowk fishing harbour was inaugurated by Mr. B. D. Pandey Governor of West Bengal

on April 17, 1982. The fishing operations from this harbour were inaugurated by Mr. Jyoti Basu, Chief Minister of West Bengal on September 26, 1982.

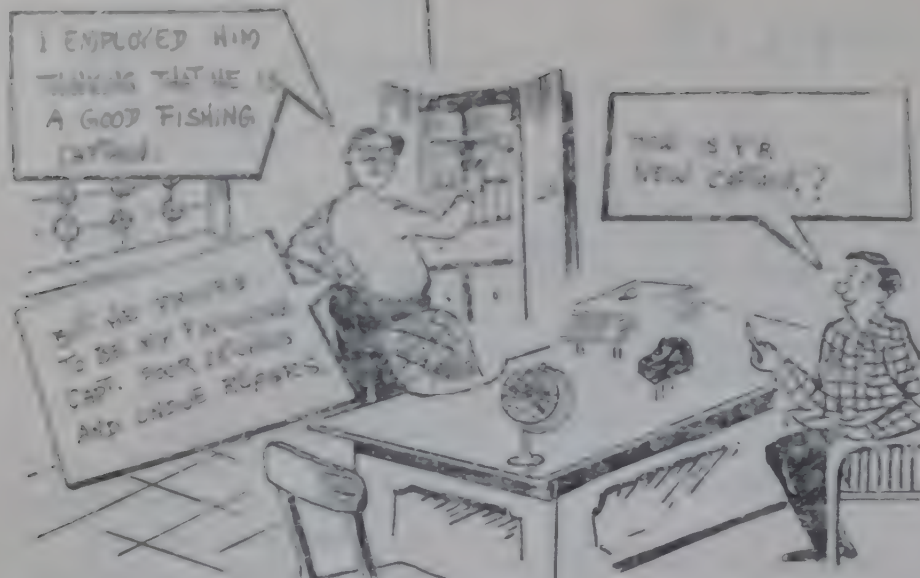
The stage-II of Visakhapatnam fishing harbour was inaugurated by Mr. Virendra Patil, Minister for shipping and Transport, on February 14, 1982.

FFDA'S PROGRESS

The programme of fish farmer's development agencies gained momentum, covering 108 districts in the country. States such as U.P., Tamilnadu and Rajasthan have set up agencies out of their own funds in several districts. The setting up of modern hatcheries also gained momentum, particularly in the states of West Bengal, Bihar, M.P., U.P. and Orissa under the inland fisheries project with the assistance from the World Bank. The Tamilnadu government promulgated an order that none of the ponds, tanks and lakes belonging to the government could be given for fishing by persons other than fishermen. The Bihar government prepared a purposeful fishery programme to produce 85,000 tonnes of fish and 135 million fry and fingerlings. A low cost circular hatchery was designed by Mr. Jamil Ahmed of Orissa fisheries department.

Dr. S. N. Dwivedi's design of modern hatchery became popular. These hatcheries set up in Haryana and other states proved to be successful. Pen culture for fish seed production gained momentum at Tungabhadra Dam.

The CIFE established possibilities for culturing white and tiger shrimp in freshwater areas. A programme for the management of reservoir fisheries was taken up in Rajasthan under the World



Bank project. Jar hatcheries were set up in Tamilnadu, Haryana, Karnataka and other states. The introduction of area development programme to promote brackish-water farming and the national seed programme for increased production of seed introduced by the centre cheered those involved in Inland fisheries development.

A breakthrough in lobster culture was achieved by CMFRI, Cochin, Tiger prawns were grown to a size of 250 mm. in nine months at the brackishwater fish farm, Kakinada. It is stated that this was a record.

CREW UNREST

The year also witnessed crew unrest both at the government establishments i.e. Exploratory Fisheries Project, Integrated Fisheries Project and CIFNET and also in the private sector. The Tamilnadu Fisheries Corporation wound up their four boat building yards.

NORWEGIAN ASSISTANCE

Norway had agreed to provide fishery equipment to India worth 5.5 million Norwegian kroner (about Rs. 1crore). 9 imported trawlers from Holland were added

to the fishing fleet. The Kerala High Court held that purchase tax on shrimp was invalid. The Kerala Government fixed fishing zones along Kerala coast.

ABAD FISHERIES BAGS AWARD

M/s Abad Fisheries, Cochin, bagged the coveted 'Food Europe Award' for 1982, instituted by 'Comestable' a trade Magazine published from Madrid.

A.P. Fisheries Corporation ran into serious troubles owing to heavy losses. This resulted in unprecedented retrenchment of staff and reduction in activities.

SEMINARS AND SYMPOSIA

There were several seminars, symposia and workshops conducted during the year. Those worthy of mention were:

- a) Seminar on 'Freshwater Fish Seed Production' held at Cuttuck on 17 Feb. 1982.
- b) Seminar on 'Coastal Aquaculture in West Bengal' held at Calcutta on 8th March 1982.
- c) Seminar on 'Fisheries Development in India' held at the Indian Institute of Management, Ahmedabad, in April 1982.
- d) Seminar on 'Kolleru Fisheries Development' held at Eluru on the last week of April 1982.
- e) Symposium on 'The diseases of fin-fish and shell-fish' held at Fisheries College, Bangalore during March 1 & 2, 1982.
- f) Symposium on 'Ganges ecosystem' held at Hardwar from 10-12 Oct. 1982.
- g) Workshop on 'Acquisition and dissemination of data on living marine resources of Indian seas' held at CMFRI, Cochin, during 21-23 Oct. 1982.
- h) Symposium on 'Harvest and Post-Harvest technology of fish' held at Cochin during 24-27 Nov. 1982.
- i) Symposium on 'Evaluation of purse seiner operations off Karnataka coast' held at Fisheries College, Mangalore on 27 & 28 July 1982.
- j) Workshop on 'Composite Fish Culture and Fish Seed Production' held at the Fresh Water Aquaculture Research & Training Centre, Dhauli, Orissa, during July 1 & 2, 1982.
- k) Seminar on 'Strategy for Fisheries Research' held at the Fisheries College, Mangalore during 17-18 May 1982.
- l) A 'Convention of Sea Food Exporters' was held at Bhubaneswar during June 30 to July 2, 1982.
- m) Seminar on 'Ichthyology' was held at Gauhati during 26-29 July 1982.

FISHERWOMEN'S CO-OPS

The Tamilnadu Fisheries department conducted a training course on 'Community Organisation for fisherwomen' in August-September 1982 in collaboration with the FAO Bay of Bengal Programme. Training courses were also held by the CIFE and MPEDA in regard to prawn farming and

prawn seed production. CIFE had also held training courses in the management of fish seed farms.

A high light of the year was the setting of fisherwomen's co-operatives in Karnataka and Tamilnadu. Another high light was the participation of women in aquaculture in Karnataka. Chilled sea water was used successfully for preservation of mackerel on board purse seiners in Karnataka.

PAIR TRAWLING

The FAO/Bay of Bengal Programme introduced the operation of pair trawling successfully with high opening trawls from small mechanised boats. The Karnataka Fisheries Development Corporation commenced shipment of frozen mackerels to Dubai. M/s George Maijo & Co. undertook the export of pearlspot to Abudabhi. The first-ever shipment of frozen shrimp

from Goa port was made by M's Tropical Shipping Company, Visakhapatnam, in August 1982. For the first time from Madras, chilled pomfrets were exported by air to Singapore by M/s Vaval Sea Foods, Madras.

An air-squadron for the coast guard was inaugurated on May 22, 1982 by Mr. K. P. Singh Dev, Union Deputy Defence Minister. The strength of surveillance craft of the coast guard also was considerably strengthened during the year.

TASK FORCE'S REPORT

A Task Force set up by the Ministry of Commerce on the development of marine products exports development, submitted its report to the government making several recommendations.

The programme evaluation organisation of the Planning Commission recommended the setting up of fishing harbour development authority. The

Karnataka government decided to set up such an authority for the harbours in their state.

CHARTER RULES

The rules governing operation of foreign fishing vessels by their owners in Indian waters and for the operation of such vessels by Indian charterers were notified by the Ministry of Agriculture on 26th August 1982. Government issued permissions to 16 companies including certain public sector corporations for around 50 pairs of bull-trawlers and a few stern trawlers and gill-netters for chartering and for operation in Indian waters. The chartered vessels in operation in 1982 were around 20 unit.

A system of holding quarterly dialogues with the representatives of the deep sea fishing industry was introduced by the Ministry of Agriculture. The first in the series was held on 16th September 1982 at Visakhapatnam.

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Arbitrariness Stains Latest Charter Rules

The Central government enacted the Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act, 1981 (42 of 1981) in September 1981. Section 25(1) of the Act empowers the Central Government to make rules for carrying out the purposes of the Act by notification in the official gazette.

MAIN PURPOSE

The purpose of the Act is the regulation of fishing by foreign vessels. Accordingly, the central government, in the department of agriculture and co-operation published the rules for the purpose in the notification No. G.S.R. 619(E) dated 26th August 1982 in the gazette of India (extraordinary).

TRANSGRESSION OF PURPOSE

The notification is comprehensive. It is a meticulous document which takes care of all conceivable aspects relating to regulation of fishing by foreign fishing vessels. There are however a few points in the rules which appear to transgress the purpose. These may prove to be of interest. Rule 8(1) (c) of the notification reads as follows:

"The charterer shall give an undertaking in the form of bank guarantee before the commencement of the charter, of an amount to be decided by the

Central Government in each case to the Central Government that he shall purchase required number of vessels and put them in fishing operation in the Exclusive Economic Zone of India before the end of the stipulated period specified in the Schedule-II".

Schedule II referred to in the rule is as follows:

From a developmental angle Rule 8(1) (a) is perhaps justified. This is however of a compulsive nature, obviously aimed at ensuring

that the Indian charterers acquire their own vessels as part of the permission given to obtain vessels on charter. The deep sea fishing enterprises who chartered foreign fishing vessels earlier did not bother to acquire their own vessels as per the stipulated conditions and they were obviously responsible for the inclusion of this harsh clause. It has however to be noted in this connection that as the programme becomes popular the chartering companies will, in their own interest, acquire vessels of their own.

SCHEDULE - II

Schedule of purchase of vessels

No. of vessels or pair of vessels	Number of months from the beginning of the charter operation when obligatory purchase and fishing operation becomes due.				
	First vessel or first pair of vessel	Second vessel or second pair of vessel	Third vessel or third pair of vessel	Fourth vessel or fourth pair of vessel	Fifth vessel or fifth pair of vessel
1	18	..	..	..	..
2	18	30	..	..	..
3	18	24	33	..	..
4	18	24	33	42	..
5	18	24	33	42	51

LEGAL POSITION

The rule however sounds illegal, arbitrary and unreasonable. The Maritime Zones Act, under the provision of which the rules were framed, was enacted, as seen from the title, exclusively for the regulation of fishing by foreign vessels. Chapter II of the Act deals with this aspect only and prescribes licences for owners of foreign vessels and permits for Indians chartering foreign vessels, for operation of foreign vessels in Indian waters. The Act, even by the remotest chance or interpretation, does not deal with introduction of Indian vessels. This aspect is completely out of the purview of the Act and this cannot legally be the instrument to achieve the augmentation of Indian fleet. While the Act provides for issue of licences and permits subject to such conditions and restrictions as may be prescribed and to such additional conditions and restrictions these additional conditions and restrictions have to be within the scope of the purpose of the Act which is to regulate fishing by foreign vessels.

ARBITRARINESS

Apart from the position from a legal angle which we believe is right, the contents are clearly unreasonable. The undertaking to be given in the form of bank guarantee has to be for an amount to be decided by the Central Government in each case. According to this, this amount can be fixed at any level. There is no upper limit. Human weaknesses are the same at all levels. At some point of time a higher-up who does not like a particular enterprise may fix an unreasonably high figure as the guarantee amount. From this angle, the provision is clearly arbitrary. As examples, it may be mentioned

that the department of agriculture fixed the guarantee amount at Rs. 2 lakhs for five pairs of chartered vessels in some cases, and Rs. 2 lakhs per vessel in other cases. For some others, guarantee by way of bank guarantee for Rs. 1 lakh, and a cash deposit of another Rs. 1 lakh per vessel was stipulated. The criteria for this arbitrary fixation of amounts and mode of guarantee are not known. While the rule clearly refers to 'bank guarantee', the stipulation of cash deposit is, to say the least, autocratic and without sanction by law.

BEYOND THE MAXIMUM PENALTY

Another aspect, leaving aside the basic legality of the clause itself, is that, under the Act the maximum punishment for contravening any condition in the permit issued to Indian charterers, other than those relating to the area of operation or method of fishing, is a fine not exceeding rupees fifty thousand. The rule under comment contemplates the forfeiture of the guarantee amount, which may be rupees two lakhs per vessel or more (or can be less) in case the party concerned fails to introduce their

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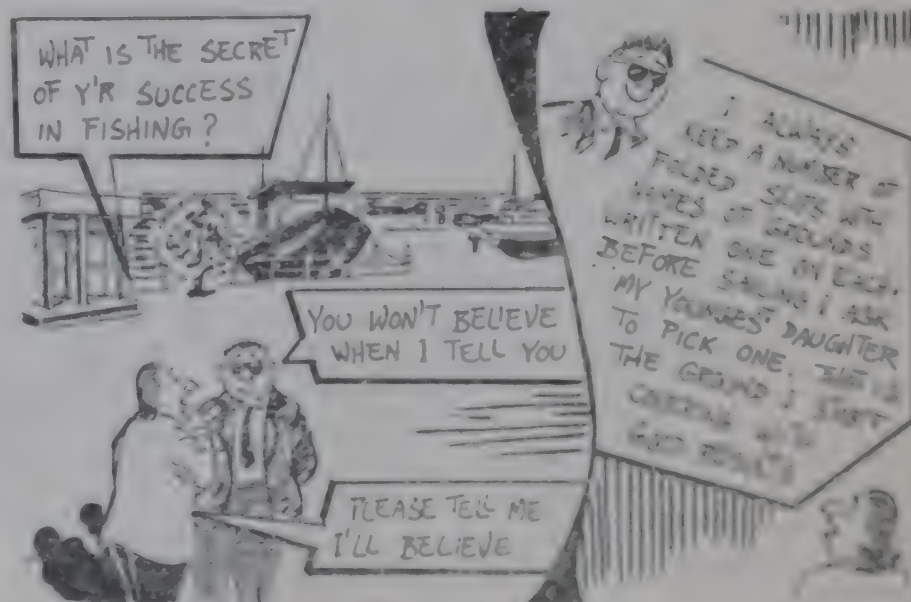
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Visakhapatnam 530 002

Phone 61142

own vessels as per Schedule II. When the Act contemplates a maximum punishment of rupees fifty thousand, can there be a provision relating to another penalty over and above this? To us, this appears irregular and outside the scope of the Act.

We would advise those who are either operating or intend to operate vessels on charter to ponder over the above mentioned points for seeking such redressal as necessary.



Symposium on Harvest and Post Harvest Technology of Fish

COCHIN 24TH TO 27TH NOVEMBER 1982

K. VIJAYA KUMARAN

A four day symposium on Harvest and Post-harvest Technology of Fish was held at Cochin under the aegis of Society of Fisheries Technologists (India) from 24 to 27 of November 1982. The Symposium succeeded in creating an opportunity for the scientists, industrialists, administrators and others to discuss the intricate and inter-related aspects of harvest and post-harvest technology of fish and also in enabling effective dissemination of information.

Inaugurating the Symposium, Mr. R. V. Swaminathan, Union Minister of State for Agriculture and rural development, called for intensive research and development activities to help the fishermen of the country.

He stated that from almost subsistence fishing activities from conventional country crafts in the pre-independence period, fishing has now developed into an organized industry, employing approximately 17000 mechanised boats of various sizes operating throughout the coastline and deploying most modern fishing gear. With an annual fish landing of 2.4 million tonnes from both marine and inland sectors, India now ranked seventh among the major fishing nations of the world.

TRADITIONAL SECTOR TOPS IN HARVEST

He observed that in spite of the tremendous development in mechanized fishing, 65% of the Indian marine fish catch is from traditional sector using indigenous craft and gears and therefore, more research and development activities with proper training facilities both at harvest and post-harvest levels are needed.

With the declaration of 200 mile Exclusive Economic Zone, we are vested with the right and responsibility of exploiting the tremendous resources, both living and nonliving, of this zone. Till recently some of the advanced countries in the field of deep sea fishing had been exploiting our territorial waters and we had to achieve a great deal in this field too, he added.

He said that the Union Government is doing everything possible to encourage deep sea fishing by import of deep sea trawlers and promoting collaborative projects with foreign countries which possessed advanced technical knowhow and expertise.

The Minister pointed out that the contribution of Rs. 750 crores by fisheries at current price levels to the G.N.P. was a clear evidence of the key-role

played by the industry. Realising this, the Union Government had allocated Rs. 371.14 crores for its development during the VI five year plan, he said.

TECHNOLOGY FOR TRADITIONAL FISHERMEN

Mr. R. Madhavan Nair, a pioneer of the fish processing industry, presiding over the function, stressed the need for transfer of technology to the traditional fishermen. He said that despite the modern handling, processing and quality control measures, which were more beneficial to the export industry, 95% of the catches going to the interior areas were kept and consumed in a very unsatisfactory condition.

FISHERIES UNIVERSITY

Speaking on the occasion, Prof. Mathew Paily, Mayor of Cochin, pointed out the need for a fisheries University. He also suggested that Cochin was the suitable location for such an establishment because of the unusual concentration of research institutions and trade organisations connected with fisheries in and around Cochin.

SEPARATE MINISTRY

Mr. C. Cherian, President, Seafood Exporters Association in

Combination trawler



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The hull is divided into six watertight compartments: forepeak, crew accommodation, engine room, fish hold, fuel tanks and afterpeak/netstore.

Freezing of the catch is done by the brine tank on the main deck and by a blast freezer in the hold.

The propulsion installation consists of a Caterpillar marine diesel engine of 270 kW (365 hp) at 1800 rev/min, driving a fixed pitch propeller.

The three-drums fish winch is hydraulic driven. Two auxiliary engines drive a compressor for the freezing installation, generator and a bilge pump.

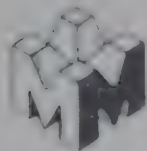
In the superstructure are provided a galley/messroom, two toilet/shower cabins, two double and two single cabins. In the forepart below deck an eight berth crew compartment.

Nautical and fishing equipment, comprise among others radar, radio installation, direction finder and echosounder.

The vessel obtained the classification Lloyd's 100 A1 "trawler" and Lloyd's Machinery Certificate (LMC).

Main particulars:

length overall	23.50 m
length between p.p.	21.00 m
breadth mld.	6.50 m
depth at side	3.40 m
draft (mean)	2.65 m
fish hold capacity	abt 70 m ³
fuel oil capacity	abt 40 m ³
fresh water capacity	abt 15 m ³



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his speech recommended the creation of a separate ministry to deal with the various aspects of fishing industry. He gave a number of instances when difficulties were encountered because of the multicentred control by different ministries.

Earlier Dr. C. C. Panduranga Rao, President, Society of Fisheries Technology (India) welcomed the gathering. Dr. E. G. Silas, Director, C.M.F.R.I. was one of the speakers, and Mr. R. Balan, Secretary of the Society proposed a vote of thanks.

Dr. A. N. Bose, Prof. of Agriculture Engineering, Indian Institute of Technology and former president of the Society was the patron of the symposium and Mr. M. R. Nair and Mr. K. K. Balachandran, Scientists of CIFT were the Chairman and Convener respectively. Soon after the inaugural function, the technical sessions, divided subjectwise into 10 sessions, began at the CIFT conference hall.

TECHNICAL SESSIONS— SESSION I

The I session on 'Resources' was chaired by Dr. E. G. Silas, Director, CMFRI, Cochin. Dr. N. Balakrishnan Nair, Prof. and head of the department of aquatic biology and fisheries, University of Kerala, who was the key-note speaker, gave a vivid picture of the fisheries resource potential of India. 10 papers were presented in this session by scientists of repute from various Institutes in India. They discussed pelagic and demersal fisheries resources of various regions of Indian coast as well as reservoir fisheries.

SESSION II

Named 'Fishing Craft', the II Session was chaired by Mr. Rajat

Roy Choudhuri of Calcutta Port Trust and Mr. M. Jayaraj, Director of Fisheries, Karnataka, delivered an interesting keynote speech. In all the 13 papers presented in this session, various aspects of fishing crafts such as, construction material, design, operational parameters, corrosion and its control, paints, wood preservation etc. were discussed.

SESSION III

The III session dealt with 'Fishing Gear and Methods'. Mr. K. M. Joseph, Director E.F.P. was the Chairman and Dr. W. Dickson from Scotland was the keynote speaker. Topics like indigenous methods, design and operational aspects of various types of bottom trawls, otter-boards, mid water trawls, netting materials and their strength, properties etc. were covered in the 28 papers presented in this session.

SESSION IV

The IV Session held under the chairmanship of Mr. P. U. Cariappa, General Manager, Cochin Shipyard, dealt with machinery, equipment and instrumentation. Mr. M. Swaminath, Director, CIFTNET, Cochin, in his key-note address called attention to the engineering and instrumentation aspects of fisheries, especially that of the harvest sector. The 10 papers presented in this session discussed topics like mechanisation of traditional vessels, various types of engines, electronic instruments, fish pump, aquatic weed harvester and some machinery for processing Sector.

SESSION V

The V Session, devoted to discussion on 'Handling and Transportation of Fish,' was chaired by Dr. A. N. Bose and Dr. Ing Johny Royrvik, of University of

Trondheim was the keynote speaker. The 12 papers presented in this session covered various topics like handling and transportation of fresh fish, utility of dry ice, preservation by chemical treatment, iced storage of fish, chilled sea water storage etc.

SESSION VI

The VI Session covered the 'Bio-Chemistry and Bacteriology of fish preservation and Storage'. Dr. G. S. Nadkarni, Head, Bio-Chemistry and Food Technology division, Bhabha Atomic Research Centre and Dr. T. M. Rudra Setty of Mangalore fisheries college were the chairman and keynote speaker respectively. A maximum of 35 papers were presented in this session. Topics of bio-chemistry included bio-chemical composition of various fishes, changes during frozen storage, heavy metal concentration, insecticide residue, fish poisons etc. Papers on Microbiology covered topics like quantitative and qualitative assessment of bacterial flora of common fresh water and marine fishes and common seafood items, salmonella contamination, its isolation, survival of various species of Salmonella, Staphylococci and Vibrio in different products etc.

SESSION VII

The VII Session under the Chairmanship of Prof. N. G. Magar, retired professor of bio-chemistry, institute of science, Bombay dealt with 'Fish Processing'. Dr. J. Disney of Tropical products Institute, London delivered an interesting keynote speech. Scientists from various institutes from India and abroad presented the results of their works on various aspects of fish processing in the 17 papers presented in this Session.

SESSION VIII

The VIII Session was named 'Fishery products and By-products'. Prof. H. P. C. Shetty, Director of Instruction, College of Fisheries, Mangalore chaired and Dr. Jan Raa, professor of fishery chemistry, University of Tromso, Norway was the keynote speaker. 7 papers presented in this session dealt with the various by-products like pickles, ensilage, shrimp extract, Chitosan, Oils and fishmeal.

SESSION IX

The IX Session under the Chairmanship of Mr. R. Madhavan Nair of Cochin Company, discussed the subject, 'Fish Inspection and Quality Control'. Mr. O. P. Dhamija, Additional Director, Export Inspection Council of India made an interesting keynote speech. Nine papers were presented in this session regarding the various problems and studies associated with quality control of fish.

SESSION X

The X Session, on 'Extension and Education in Fisheries', was chaired by Dr. P. V. Dehadrai, Fisheries Development Commissioner, Ministry of Agriculture and Dr. C. T. Samuel Head of the Department of Industrial Fisheries, University of Cochin gave the keynote address. The 7 papers presented in this session discussed the various extension methods, their impact and some socio-economic aspects relating to a few regions.

About 250 delegates from over 50 institutions/organizations attended the symposium. The organisers were forced to restrict the registration to members of the society and scientists presenting papers because of the limited facilities. In all 162 papers

were presented by the authors in the 10 technical sessions during the 4 days. The aspects covered in the papers were well discussed and draft recommendation formulated.

The plenary session under the chairmanship of Dr. C. C. Panduranga Rao, President of the Society and Director, Central Institute of Fisheries Technology made the following recommendations:

RECOMMENDATIONS

The symposium recommended: improvement of the method and utilization of non-conventional resources to augment fish production by the artisanal sector; exploitation and utilization of tuna and squid; intensification of coastal aquaculture of fin fish and shellfish; design, development and prototype construction of fishing vessels, particularly above 16 m OAL, for the exploitation of EEZ; design development and construction of smaller crafts for the use of the small scale fishermen; improvement of indigenous crafts employing fuel - free technologies; standardisation of fishing boats based on the recommendations of ISO, research and development work on newer boat building materials such as wood-plastic composites, toxic wood plastic composites, polymer incorporated, ferrocement, marine aluminium alloys and cupronickels; establishment of wood preservation plants (including mobile ones at selected locations for the benefit of the artisanal fishermen); R and D works on corrosion control measures; introduction of newer materials for fishing gear; model testing and research on fishing techniques suited for inshore and distant waters and low energy fishing systems.

Regarding machinery and equipment the symposium recommended that efforts should

be intensified to improve the performance and reduce running cost of marine diesel engines and also to develop inexpensive simple electronic gadgets for the use of small scale fishermen.

The symposium further recommended improved methods of handling transport and storage of live and landed fish through development of low temperature transport containers, radiation pasteurization etc. and regulatory measures for quality assurance for fish and fishery products marketed in India and abroad; monitoring of the aquatic environment for factors affecting hazards to aquatic life and human beings; strict measures for eliminating of salmonella in fish and fishery products, identifying alternate container material to tin for heat processed fishery products; improved, inexpensive and simple fish processing technology and utilization of by-catch including non-conventional resources such as mesopelagic resources.

Basic studies were recommended in fish behaviour, alternate materials for construction of boats, biochemical and bacteriological spoilage of fish, species and season-wise biochemical composition of fish and studies on heat penetration in canned fish.

The symposium strongly recommended that extension activities at State and Union Territories levels were to be strengthened. The need for extension support was particularly identified in the transfer of proven technologies pertaining to fishing and preservation of catch to small scale fishermen, weed harvesting, the use of electronic instruments in fishing, production of food and feed developed from incidental by-catch and offal from factories and commercial production and marketing of convenience food in India and abroad.

Dry Bundh Breeding of Mrigal Breakthrough in Bidar

ADVI RAO and G. S. SINGIT

The major portion of seed requirement of Karnataka is met by inducing the major carp to spawn through "hypophysation" which is a technique recently developed in India. The production of fish seed by "hypophysation" in 1964-65 was mere 0.09 crore which went upto 8.10 crores by 1980. The occurrence of catla fish seed is recently noticed in river Krishna and in Tungabhadra reservoir, which is a sign that this fish has established itself in these waters. However, location of natural fish seed resources in these waters for economic utilisation may not be possible immediately.

MEETING SEED DEMAND

The demand for carp fish seed is increasing day by day. There is thus a need to continue the efforts for meeting the fish seed requirements by adopting 'dry bundh' technique to induce major carps to spawn. Though the attempts made for spawning of carps in dry bundhs was a failure in Dharwar district in the year 1965, the Director of Fisheries of Karnataka directed that these experiments should be revived on the lines suggested at colloquium on breeding of carps in bundhs held at Nowgong in Madhya Pradesh during July 1981. The activity was accordingly undertaken and the first successful spawning of *Cirrhina mrigala* was achieved in Bidar district in July 1982.

The prerequisite for dry bundh breeding is the required quantity of mature and uninjured breeders at short notice. The topography

of the bundh selected must be of a slopy terrain in the red, sandy or laterite soils, having a recent accumulation of rain water, low per value, low total alkalinity, low specific conductivity, and high turbidity with a distinctly reddish colour. These are desired factors for spawning of carps in dry bundhs.

CONGENIAL TERRAIN

It is observed that the terrain in Karnataka having a number of elevations and depressions with lateritic soils or red sandy soil with a rain fall of 75-100 mm closely resembles that of Nowgong of Chhatarpur district or of Pundh bundh breeding complex of Setna district of Madhya Pradesh. The areas available with lateritic soils, and red sandy soils are Uttar Kannada, Dakshina Kannada, Bidar, Shimoga, Belgaum, Hasan and Chickmagalur. Considering the above position, and successful spawning in Telangana region of Andhra Pradesh by Ghosh and Ramachandran in dry bundh spawning for two years in 1968 and 1969, the authors selected a site in Bidar district for this experimental work and preliminary survey.

Bidar is the northern most district of Karnataka. It is situated between 17°-35° and 18°-25° north latitudes and 26.42 and 77.39 east longitudes. The district is bounded on the east by Nizamabad and Medak district of Andhra Pradesh and on north and west by the Nanded and

Osmanabad district of Maharashtra state and on south by the Gulbarga district of Karnataka state.

The climate of this district is characterised by general dryness throughout the year except during south west monsoon. The south-west monsoon commences by 1st week of June and continues till the end of September. The average annual rain fall is 907.5 mm. (35.73"). About 82% of the annual rain fall is received during the period from June to September.

The land of Bidar district could be divided into two major forms, namely, high level laterite plateau and basaltic plateau. In Bidar, Humnabad and Basavakalyan taluks laterite type soil is found dominantly. In Aurad and Bhalki taluks deep black soils which are clayey in texture occur.

SELECTION OF BUNDHS

Extensive survey work was taken up, during January 1982, to locate suitable experimental dry bundh in Humnabad, Bidar and Basavakalyan taluks of Bidar district. Finally a pond near Kabirabadwadi area of Humnabad was selected for experimental spawning of major carps, with necessary improvements for conducting experiments. The pond is situated 24 km. from Bidar town and 15km. from Humnabad.

The maximum water spread area of the pond is two hectares, with a maximum depth of two metres. The catchment area, for the pond is four hectares from a hillock consisting of open space and a few niligeri

rees are found in the catchment area. Before the onset of monsoon the silt accumulated in the sides was removed and a waste weir of two metres long and an outlet pipe was fixed. Two more tanks, namely Kalkhora in Basavakalyana taluk and Kamalpur tank of Gulbarga district which are about 30 kms. from Kabirabadwadi dry bundh (pond) were also selected and utilised for collection of wild mrigal breeder stocks, weighing between 2.5 to 3 kg.

HOW IT WAS DONE

On receipt of sufficient rain water in the dry bundh at Kabirabadwadi the first stock of mrigal breeders weighing 50 kg. were released into the bundh on 6-7-1982 at 6.30 p.m. The water temperature recorded was 26.5°C. and atmospheric temperature was 28°C. The pH of the water was 6.2 and depth of water column was 90 cm. It was a bright sunny day, with no signs of rain. There was no spawning on 8th, 9th and 10th July 1982. Ten more mrigal weighing 30 kg. were introduced on 10-7-1982, when it was cool and cloudy throughout the day and it was raining during the night. The dry bundh received fresh water. It was observed that fishes were spawning in the early hours of 11.7.1982 (at 3.00 A.M.) The eggs were collected in the morning by 10.00 A.M. and transported to Bhalki tank for hatching. The percentage of fertilization noticed was 50%. On 14-7-1982, a third set of ripe mrigal breeders weighing 36 kg. were introduced in the evening when there was no sign of rains. On the same day, however, rain started at night and the dry bundh received fresh rain water.

On 15-7-1982, the fishes spawned in the night and water hardened eggs were collected on 16-7-1982 morning. The percentage of fertilization noticed was 80. The

eggs were transferred to Bhalki tank and hatched. Eggs were collected in buckets and transported for hatching as further facilities were not available nearby for hatching and rearing. The fry collected from this experiment amounted only 12000.

SUCCESS ACHIEVED

The Bidar district which is the northern most district in Karnataka was totally devoid of fish seed farms all these days. The dry bundh breeding experiment to breed mrigal, conducted for the first time in Karnataka in this district became a success. Due to lack of experienced personnel in collection of eggs and absence of adequate hatching facilities, the numbers of spawn obtained could not be assessed correctly. Rohu and catla breeders could not be

introduced in the dry bundh for lack of ripe breeder stock.

This successful experimental spawning of mrigal at Kabirabadwadi dry bundh may pave the way in meeting the fish seed requirement of Bidar district by selecting a few more dry bundhs and building a stock of brood rohu and catla fishes and by setting up hatcheries. Further, the technique can be extended to many more suitable places of Karnataka state.

The authors are grateful to M. Jayaraj, Director of Fisheries, and Mr. B.L. Kotbagi, Joint Director of Fisheries, for their constant encouragement and facilities provided. Thanks are due to Mr. A.M. Biradar and Mr. Ramesh Patwari for the active interest shown while conducting the experiment.

FISHERMEN'S JUMBLE

These words are as unsorted as a fish haul. Restore them to the correct order, with each letter to a square. After this, arrive at

the answer by adjusting the letters in the 'fishes', deriving clue from the sketch alongside. Answer on p. 19.

RUFPEF

GULN SHIF

RILNAM

GINTS ARY

ANSWER

WHILE HAULING A PURSE SEINE WHAT YOU MUST BE CAREFUL ABOUT.

THE

Round-up on Rajasthan

During 1981-82 the Government of Rajasthan earned an impressive sum of Rs. 1.50 crores mainly by leasing out the fishing rights in its reservoirs, lakes and rivers. While the annual plan budget on fisheries is Rs. 45 lakhs, the non-plan budget is Rs. 33 lakhs.

The total water area available for fish production in the state of Rajasthan is about 3 lakh hectares. The area covered by major and medium sized reservoirs is 1.20 lakh hectares.

In 1981-82 fish production in Rajasthan rose by one thousand metric tons over last year's 13,500 metric tons. Fish seed production rose commendably from 30 million during 1980-81 to 58 million during 1981-82.

With several developmental projects and pilot schemes on hand, the Government of Rajasthan has now geared its entire fisheries machinery to make Rajasthan one of the foremost state in inland fish production. The developmental plan outlay on fisheries too has been enhanced this year to 45 lakh rupees from that of 28.60 lakhs during last year.

This year the Government of Rajasthan is going to give a major impetus to fish seed and fish production programmes by increasing the number of fish farmers development agencies. The three agencies now in existence with central assistance proved to be a great success in the State. The Rajasthan government has recently sanctioned three more FFDA in Udaipur, Dungarpur and Banswara without seeking central assistance. These FLDAs cover tribals.

During 1980 the Government of India has sanctioned a 18.60 lakh pilot project on reservoir fisheries management with the assistance from the World Bank. The scheme, to be implemented over a period of three years, envisages the development of reservoirs with a total extent of 500 to 1000 hectares into booming fish production centres.

Rajasthan is perhaps the last of the Indian states to have a separate fisheries department, which was formed in January 1982. The department has an I.A.S. officer as its first director. He has experienced technical personnel to assist him. Efforts are being made to fill up the post of joint director of fisheries, sanctioned two years back but lying vacant, for want of finalisation

of recruitment rules. Once the post is filled up, the director will be able to get advice from a single senior technical officer, instead of consulting several.

RESERVOIR PROJECT

The introduction of the pilot project for reservoir fisheries management is by far the most important scheme taken up by the department.

The immediate objectives of the Pilot Project are a) to assess the primary productivity of the selected reservoirs and to investigate the possibilities of improving natural productivity both in terms of quality and quantity for introducing latest technology and to find out whether it is economically feasible, and b) to identify the various constraints in the development of reservoir fisheries and to evolve suitable remedial measures for their removal and to analyse the input/output ratio for determining the economic cost benefits of reservoir fisheries management by improving the management techniques with regard to the available resources and existing circumstances.

SURVEY

Invited by the state government of Rajasthan for this purpose, Dr. R. G. Jhingran, Head of the Fisheries Division, Riverine and Lacustrine Fisheries Unit, Central Inland Fisheries Research sub station, Allahabad, conducted an extensive survey for selection of two major reservoirs which could provide the best scope for the implementation of the Pilot scheme.

The survey was conducted on Ramgarh bundh, Jaipur; Chaparwada bundh, Jaipur; Maza dam and Gowadi dam in Bhilwara; and Jaisamand, Harchand bundh, Fateh Sagar, Badgaon, Sarjana, Daya and Udaisagar, all from Udaipur area. According to Dr. Jhingran's assessments two reservoirs, namely Ramgarh and

Chaparwada bundhs of Jaipur district were most suitable for implementation of Pilot scheme.

Accordingly, during the middle of this year two research assistants were posted at Ramgarh and Chaparwada bunds to undertake pilot studies in accordance with work plan for 1982-83 to be consolidated in consultation with Dr. Jhingran. Full equipment needed for the work was provided at Ramgarh and Chaparwada bundhs.

Dr. Jhingran, during his survey, found that about 26 fish species were available in these two reservoirs out of which eight of them were of commercial value namely; *Catla catla*, *Cirrhina mrigala*, *Labeo rohita*, *Labeo calbasu*, *Wallago attu*, *Clarias magur*, *Puntias sarana* and *Notopterus notopterus*.

Remarkably, the major component of fish available in the reservoirs is major carps consisting of 70%. Ramgarh has an average extent of 750 hectares (1268 hectares at FTL) and Chaparwada has an average extent of 200 hectares (200 hectares at FTL).

CATLA MOST FAVOURED

It also found during the survey that the production in both the reservoirs was good from 1976 to 78. But subsequently there had been considerable decline in the production which was attributed to poor fishing efforts. Therefore, it is planned to stock the reservoirs with large quantities of fish seed preferably of catla, rohu and mrigal. The stocking is proposed to be done in the proportion of 40% catla, 30% rohu and 30% mrigal. Total requirement under the plan comes to 3.70 lakh of seed.

To minimise the need for transportation of seed, dry bundhs

were constructed at Ramgarh and Chaparwada.

Although approved in 1980, actual work on the project has been taken up only recently. Consequently the expenditure incurred from June to August 1982 on its Project was Rs. 7689.22 only. Efforts are now being intensified to give a fillip to the implementation of the project.

FFDAs PICKING UP FAST

The First Fish Farmers Development Agency in Rajasthan was set up during 1975 in Bhilwara. Later, two more agencies were established in Ajmer and Tonk districts in 1977. All the three agencies have been performing well in the spread of fish culture. Impressive harvests were noted during 1980-81 in all the three FFDAs.

The FFDAs worked on the objectives of identifying suitable water areas such as tanks and ponds for fish farming; identifying the beneficiaries and arranging for them long term lease of water bodies owned by panchayats, other local bodies and Government; training of fish farmers, organising bank credit and other financial assistance for pond improvement and equipment; and providing full extension support in the field of fish farming.

Initially the FFDAs worked on full financial assistance from the Government of India but subsequently it has been reduced to 50%.

The FFDAs function absolutely on an autonomous pattern. The managing body of the FFDAs consists of the district Collector as the Chairman, followed by the Chairman of Zilla Parishad as Vice Chairman; Deputy Director of Fisheries, Executive Engineer of Irrigation, Additional

District Development Officer, Manager of the concerned bank, Nominee of the Union Ministry of Agriculture, and a representative of the fish farmers as members, while the Chief Executive Officer of the FFDA is the member Secretary of the Agency. Each FFDA is staffed with 15 persons to look after the work at all levels.

The FFDAs also impart training to the fish farmers in two types of programme. One is a short one with a duration of 15 days while the other one takes six months. The shorter training programmes are organised by the staff of the FFDA while the six month courses are conducted at the Departmental Fisheries Training School, Udaipur. Under the short term course a stipend of Rs. 5 per day is provided to the participants while under the longer one Rs. 135 per month are given to the trainees.

So far, the FFDAs have trained skilled personnel of about 578 nos (upto March 1982). The trained personnel were more during the year 1979-80.

Each member of the FFDA is provided with water areas of one hectare and the Government gets a fixed payment per farmer per annum. The land provided to them is allotted from panchayats and municipalities. So far the water area provided by the FFDAs to the farmers in Bhilwara and Ajmer was 171 hectares each and the FFDA of Tonk was 105 ha.

Fish seed production is also one of the major activities of the FFDAs in Rajasthan. The major portion of the requirements come from the dry bundhs. The FFDA of Bhilwara has a fish farm at Gowari which produces quality seed. The other two FFDAs have still to get their seed production bases at Ajgara for Ajmer FFDA and Chandlai for Tonk FFDA.

The FFDAs at the moment are not self sufficient in seed production. The needed help is provided by the state fisheries department. During 1981-82 the three FFDAs produced 14.33 lakh seed of good quality.

UPLIFTMENT OF S.C.

During 1982-83, the FFDAs have been entrusted with another responsibility i.e. upliftment of scheduled caste fish farmers. Fish culture has been viewed as the best medium for the upliftment of poverty stricken scheduled caste people. A target has been fixed for training and assistance to 60 fish farmers belonging to scheduled castes through FFDAs during the ensuing year. About Rs. 1 lakh has been earmarked for the purpose. FFDA of Bhilwara shares the major responsibility of taking up of 30 fishermen belonging to the scheduled castes while the other two at Ajmer and Tonk are allotted with 15 persons to be taken care of.

The functioning of FFDAs in Rajasthan has been subjected to slight changes in modus operandi, as per the directives of the Central government. These are a) introduction of a new component of assistance for the construction of suitable sized fish seed farm, b) enhancement of cost of inputs from Rs. 1,250/- per acre to Rs. 2,000/-, c) increase of subsidy rate to scheduled tribe fish farmers from the present level of 25% to 50% of Rs. 10,000/- per hectare for reclamation and Rs. 2,000/- hectare for first year inputs; d) provision of incremental staff in the form of one extension worker for every additional 100 hectares of developed water area and one extension officer for every 10 extension workers besides an addition of 4 fishermen for each FFDA; e) enhancement of

stipend for fish farmer trainees from Rs. 5 to Rs. 9 per day per trainee; and f) the expenditure on the base staff in the FFDA would be borne fully by the state government from 1982-83 onwards.

The FFDAs were instructed to revise their budget proposals for the year 1982-83 keeping in view the above revised pattern.

The difficulty of providing fish ponds with perennial water supply to the farmers has to be tackled by the government. At present ponds fetching less than Rs. 5,000/- per annum in fish auctions are given to FFDAs for being leased out to fish farmers. The FFDAs pay to the government the lease amounts as fixed by the government. The lease period is 10-15 years. The lease rates may be restructured by the government soon.

Fish production by all the FFDAs in Rajasthan was 694.50 tonnes during 1981-82. The availability of seed of catla has been scanty and hence the supply of catla seed to the FFDAs is being given top priority. There have been intensified efforts by the FFDAs to procure the seed of catla. The Bhilwara FFDA has been doing its best in this direction. Similar efforts have to be initiated in other agencies too.

DRY BUNDHS FOR MORE SEED

Fish seed in Rajasthan is produced mainly through dry bundhs. Induced breeding system has not yet been properly established. The collection of seed from the natural resources however still goes on.

Throughout the state of Rajasthan about 150 dry bundhs successfully produce the bulk of fish seed needs. Considering this,

it is now proposed to set up 10 more dry bundhs at Alwar, Karauli, Jaipur, Dholpur, Ajmer, Malpura, Jhalawar, Bhilwara, Udaipur and Pali. These stations came into being during 1979-80, and are staffed with a fisheries development officer supported by skilled personnel. Also fish seed production centres at Siliserh, Baretha, Kalakhoo, Ranapratap sagar, Ramgarh and Soorsagar have been doing commendable job. At present the dry bundhs contribute 85% of the seed production in the state while 15% of seed comes from induced breeding. The rest is from natural resources.

During last year the production of fish seed was 30 millions against a target of 47 millions. The shortfall was due to floods. However, the potential in the state has now encouraged the government to raise the target for 1982-83 to 50 millions, against the estimated requirement of 225 millions. Larger breeding and hatchery complexes, fish farms, brood stock ponds and transport facilities are going to be improved to meet the target, since these factors were much of a constraint during the implementation of fisheries developmental plans during the last year.

NEWS INTERNATIONAL BANGLA DESH OFFERS INCENTIVES

Bangladesh, it is understood, has decided to offer certain incentives to foreign investors in the field of fisheries. In this respect the Government of Bangladesh is backed by the United Nations Industrial Development Organisation.

ANSWERS TO FISHERMEN'S JUMBLE

Words: PUFFER, LUNG FISH,
MARLIN, STING RAY
Answer: PULLING THE STRINGS

**SHRIMP AS FRESH AS WHEN THEY LAND
ON DECK OF OUR TRAWLERS**

AND AS YOU WANT

**HEAD-LESS, SHELL-ON
PEELED AND DEVEINED,
PEELED AND UNDEVEINED, OR
COOKED AND FROZEN !**

**WE BELIEVE IN INTEGRATED
FISHERY ACTIVITIES. THAT IS WHY WITHIN
A SHORT TIME WE ACQUIRED SIX FISHING
VESSELS, ESTABLISHED A MODERN
MARINE PRODUCTS PROCESSING PLANT AND
ALSO SET UP A WORKSHOP OF OUR OWN**

**OUR FROZEN SHRIMP, OWING TO ITS
SEA-FRESH FIRMNESS, FLAVOUR AND TASTE
IS THE CHOICE OF SEVERAL IMPORTERS OF
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A Cyclonic Slap to Gujarat Fisheries Sector

Nature's fury in the garb of a marathon cyclonic wind swept over the coastal belt of Saurashtra peninsula in early Nov. 1982, snatching away in its 'Mahajal' the precious lives of 31 fishermen, and leaving in the lurch the merciless and irreparable loss to their families.

As reported, 25 fishermen along the coastline still remained untraceable. The state authorities are still on their heels in their search for these twentyfive missing men.

The efforts are still in full swing on the part of the state Fisheries Department to take the final stock of the situation. However, as per the information centrally codified by the state fisheries headquarters, the total estimated loss in terms of money may be of the order of Rs. 304.23 lakhs. It seems that by timely signals by the Port authorities such disasters to fishermen could be reduced at the various ports.

JUNAGADH WORST AFFECTED

Junagadh district was the worst affected area with a loss estimated at Rs. 72.10 lakhs. The loss in Amreli district is believed to have worked out to Rs. 40.89 lakhs. Jamnagar district was the least affected area with a loss of Rs. 0.90 lakhs.

EXTENT OF LOSS

The loss to the fishing harbour development together with similar loss to the existing harbour facilities, as per the information, came to about Rs. 150.00 lakhs. The working sheds at various fishing villages, recently constructed under a special programme, had also been damaged.

The districtwise break-up of the loss/damage was as under:

District	Value (Rs. lakhs)
Junagadh	72.10
Amreli	40.89
Bhavnagar	14.98
Broach	14.00
Jamnagar	00.90
Total	142.87

The item-wise loss/damage done was as follows:

Item	Nos.	Rs. (lakhs)
a) Lost:		
Boats/canoes	32	18.60
O.B. Motors	1	00.10

b) Damaged:		
Boats/engines fishing gears	1354	73.18
Fishermen huts/houses	1702	13.12
Dry fish products		14.95
Total		142.87

These particulars include only loss/damage done to the fishermen and the industry only. Over and above these losses, Government properties had also been damaged to the extent of Rs. 155.05 lakhs inclusive of the damages done to the harbour facilities. The Gujarat Fisheries Central Co-operative Association, Veraval, had also suffered a loss of about Rs. 06.31 lakhs.

To summarise, the extent of loss/damage was:

	Value Rs. (lakhs)
- Loss/damage to the fishing centres and the fishermen	142.87
- Loss/damage to the Government properties including fisheries harbour facilities	155.05
- Loss/damage to the Gujarat Fisheries Central Co-operative Association, Veraval	06.31

Total 304.23

The State Government is keen to grant tangible relief to the affected fishermen families.

Twin Trawling - A Boon to the Shrimp Industry

CAPT. E. YEEDA

Capt. E. Yeeda is in the front line of Indian fishing experts, possessing intimate knowledge and experience of fishing in Indian waters. Now he is the Operations Controller, Inter-continental Fishing (Nigeria) Limited, Lagos, Nigeria. Before joining this firm, as the Fleet Development Manager with M/s Union Carbide India Limited, Visakhapatnam, he had the opportunity of directly supervising twin trawling on a commercial scale with familiarisation trips on the various vessels involved, as part of a Rs. 6 lakh project. Readers will find this contribution by Capt. E. Yeeda interesting.

The shrimp fishing industry in India is really not very old. Many of the old timers who were there in the beginning are still around. Initially, shrimp trawling was done on the West Coast by single-rig boats dragging one net over the stern. In the late 1950s Skippers began double-rig trawling. Outriggers were fitted so as to enable the boats to tow two smaller nets on either side. The double-rig method scored over the single-rig method significantly, and increased production. A booming commercial shrimp fishery grew up, and many establishments were set-up to support the shrimp industry along the West coast of India.

THE GROWTH

However, when the shrimping industry on the West coast showed signs of decline, a few enterprising commercial firms pioneered the shrimping industry on the East Coast in the early 1970's and met with immediate success, and thus began a new era in the shrimp industry. The present day double rig method was introduced effectively. This double-rig shrimp boat is probably the most common and efficient shrimp catcher in the world today. But as competition grew, and soaring fuel prices threatened the economical

survival of the shrimp industry, fishermen throughout the world and in India as well, began to think in terms of increasing production, by every means, to make their efforts viable, and started experimenting new methods.

FOUR NETS, MORE SHRIMP

Their reasoning was obvious; if two smaller nets can catch more than one single large net, why not try four nets? Thus was established the concept of "TWIN TRAWLING". (see Fig. 1) Hailed as one of

the most significant developments in commercial shrimping fishing gear, the Twin Trawl rig tows four nets, two off each side of the boat. The psychology of Twin-trawling was to convince shrimp fishermen to catch more shrimp than the double-rig method. It was initially adapted and employed by the Brunswick Fisheries Extension station at the University of Georgia Sea Grant Program's Marine Extension Station, U.S.A. in the years 1973 and 1974 under the guidance and pioneering efforts of David L. Harrington, a marine fisheries expert. It soon caught up in Texas, U.S.A; Australia, South America, New Zealand, South Africa, Vietnam and India.

Twin-trawling was widely accepted by progressive thinking fishermen, who had the zeal to revolutionise the catching of shrimp.

THE TECHNIQUE AND HOW IT WORKS

Converting a conventional double-rigged trawler to Twin-trawling is rather simple. Twin-trawling involves four nets, instead of two nets. The only change is the addition of a third (centre) bridle

CONVENTIONAL DOUBLE-RIG TRAWLING

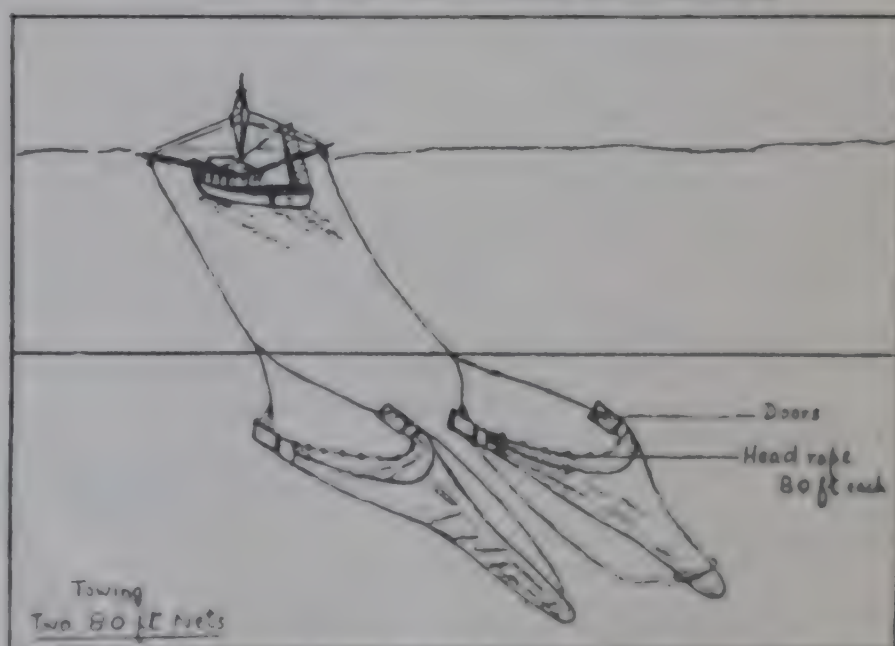


Fig - 1

TWIN TRAWLING

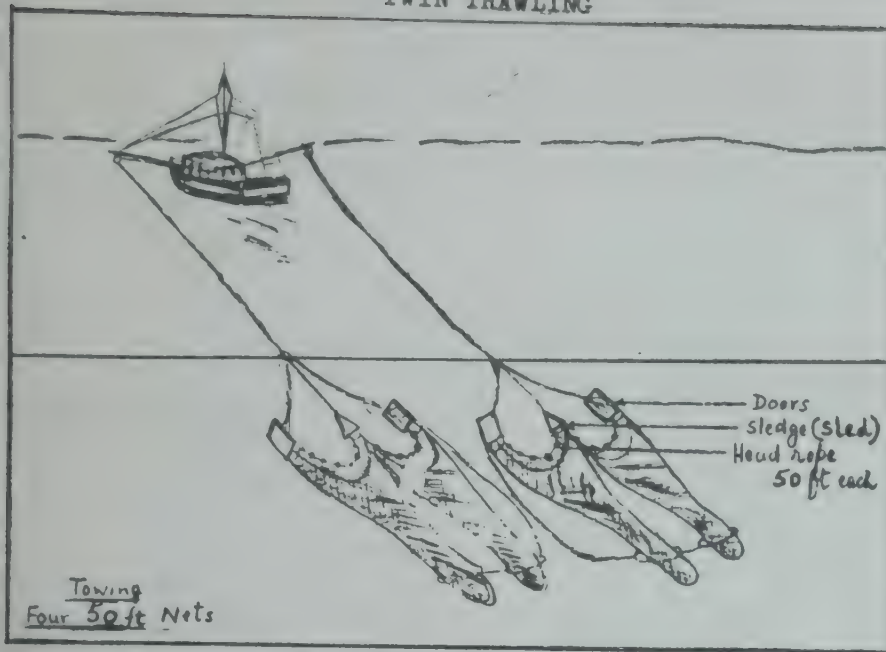


FIG 1.

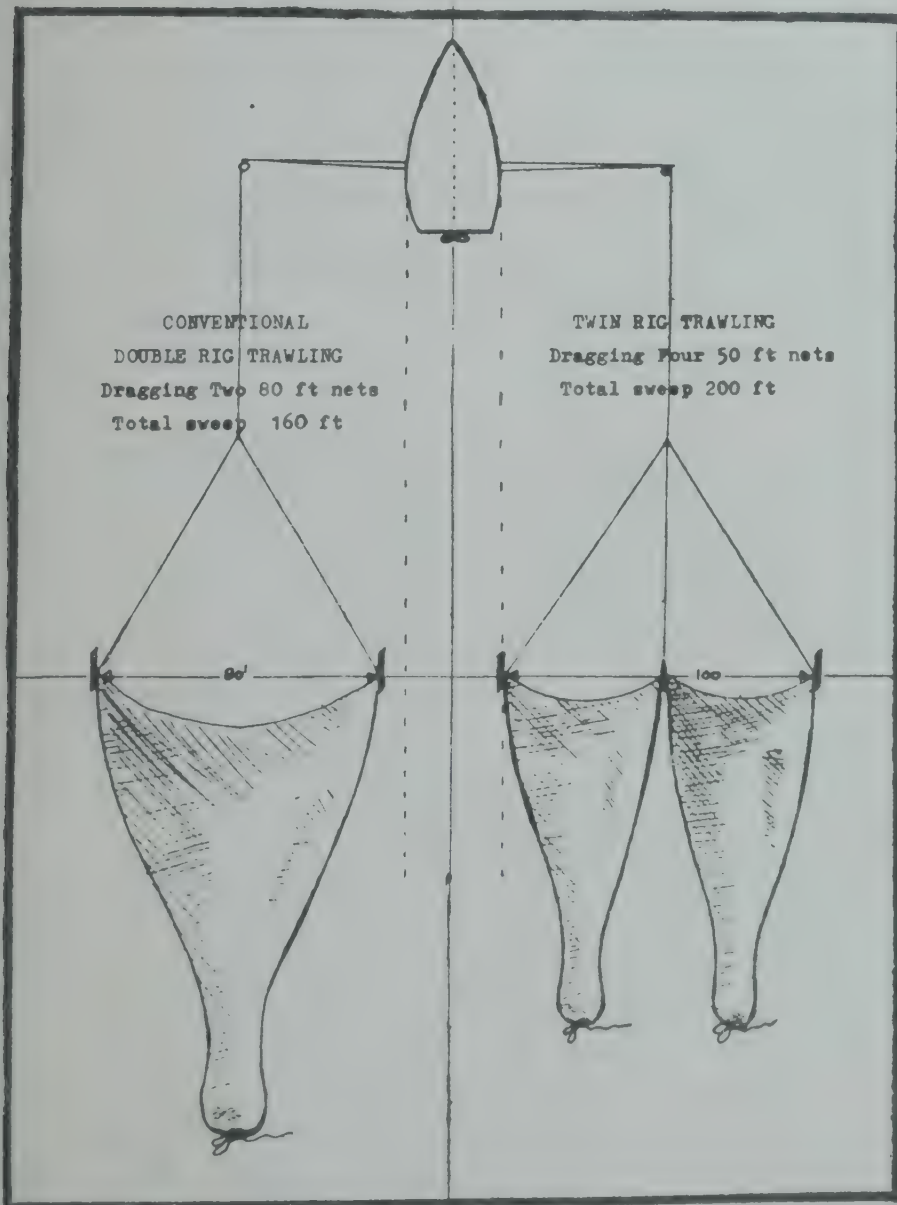


FIG 2

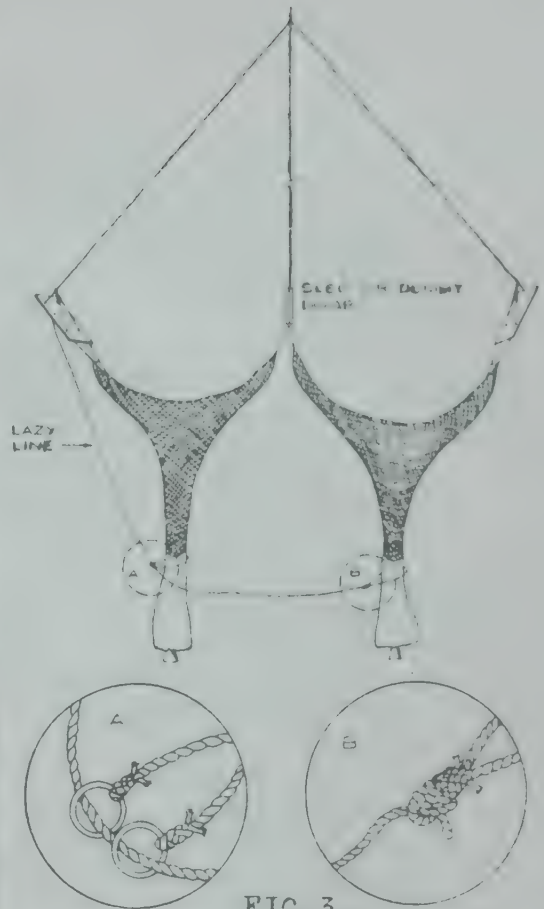


FIG 3.

wire rope which joins the 'Sled' or dummy door between each pair of nets (see Fig. 2).

The centre sled pulls the two centre wings of what are now one set of twin trawls. The result is a pair of nets being towed on each outrigger. Two of the bridle wires on each side of the boat will tow the pair of trawl doors that help to 'kite out' or open the mouth of the nets, as is the case of double rigged trawl.

The lazy line extends from the inner trawl door and passes through the stopper ring attached to the 'choker strap' of the inner net, to the outer net's choker strap. (see Fig. 3).

The sled or dummy door offers little or no resistance as it is towed through the water, yet holding the wings of two adjoining nets in operating position. (See Fig. 4)

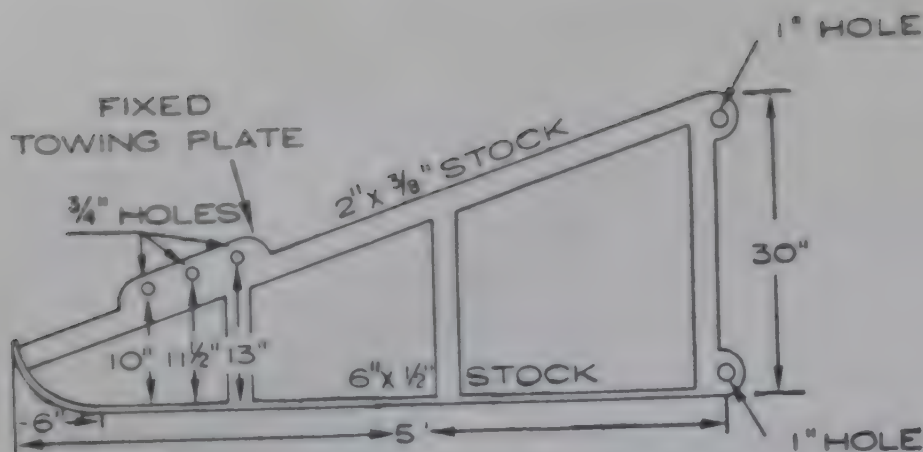


FIG 4.

This explains the fundamental functions of twin trawls, but the added advantages are many, which should be a boon to the shrimp fishermen, and to the commercial shrimp fishery as a whole.

- (a) Results with twin-trawls have proved that there is an increase of 15-20% in catch rates, over the conventional double-rig trawling.
- (b) When twin trawls replace one large net, the fabrication of twin nets require lesser webbing as the longitudinal length of the nets are shorter. Webbing are also made of smaller twine sizes, the wing spreads are smaller and the trawl doors are smaller, as compared to the conventional double-rig trawls.
- (c) This explanation demonstrates that the twin trawl gear is lighter in weight and attribute to lesser resistance when the gear operates along the sea-bed, offering increased

towing speed for a given throttle setting.

- (d) In other words, the boat covers more 'sweeping area' which means more mileage per litre of fuel consumed. If the Skipper chooses to maintain an optimum towing speed (depending on the species of shrimp he is catching) he can cut down on his throttle setting and burn lesser fuel, for a decided drag time.
- (e) A conventional double-rig trawler which operates two 80 ft. nets (one on each outrigger) with 9 ft. trawl doors, can convert to four 50 ft. twin trawl nets with 8 ft. trawl doors. This enables the boat to have an additional horizontal sweep of 20 ft. on each side a total of 40 ft. altogether, in horizontal sweep area (see Fig. 2).

This, and plus the increased towing speed will contribute to increased efficiency of 15-20% over

the conventional double-rig trawling.

THE RESULTS

Twin trawling was experimented and introduced commercially in India to the Bay of Bengal fishermen on the 93 footer shrimp boat "Priya Rani" in June 1977. There was no experimental vessel to test the new gear. It was carried out with some written literature on hand, and experience available on a "fishermen help fishermen" basis, to a high degree of success. Results on "Priya Rani" showed a 22% catch increase and its success was followed by six other sister vessels, in the same year. The results were encouraging on all the seven boats.

The Table below shows the performance of the vessel "Priya Rani" with twin trawls in terms of catch per hour of headless shrimp, versus six other sister vessels operating in the same area with conventional double-rig trawls for the period June and July 1977.

During the period all sister vessels were operating in the same area, from the Chilka lake mouth to the Gopalpur lighthouse in 16 to 26 fathoms depth and were in more or less close proximities to each other.

India stands first as the world's largest producer and exporter of shrimp today. Stalwarts connected with the industry and the illustrious shrimp fishermen have got to preserve this reputation and utilise every means possible to retain

CATCH PER FISHING HOUR (Shrimp kilograms headless)

Vessel	June 1977								July 1977							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Priya Rani	67	23	28	19	44	83	98	78	80	50	65	31	23	64	43	50
Urvashi Rani	43	33	21	20	44	81	54	27	40	39	35	13	8	48	70	40
Radha Rani	65	19	32	28	36	74	58	37	60							
Jaya Rani	53	22	22	14	28	44	30	..								
Durga Rani	..	..	..	24	54	60	72	33	63	44	19	18	13	41	52	20
Maya Rani	..	..	..	..	95	46	39	26	38	32	38	8	31	45	50	17
Asha Rani	..	..	..	..	..	..	..	..					23	48	85	30

this unique position. The resources are available. Most of the enormous riverine systems of the Indian sub-continent pour their rich nutrients into the Bay of Bengal. Evidence shows that shrimp stocks suffered no depletion during the successful decade past. Let us hope that it could remain a perennial source for many more decades to come. The shrimp

grounds that exist in the Bay of Bengal have different submarine topographical characteristics when compared to the once renowned Gulf of Mexico and Gulf of Carpentaria shrimp grounds. This remark may sound queer and may raise many eyebrows; nevertheless twin trawling would be the best attempt in realising this goal.

improving the population of other varieties through stocking programmes.

NEED TO CONTROL CAT FISH

Cat fishes and miscellaneous fishes abound in most of the reservoirs. Steps are necessary to drastically reduce their population to enable the more economical species to have chance to develop and populate the reservoirs. The common cat fish species occurring in reservoirs are *Wallago attu*, *Mystus seenghala*, *M. aor*, *Silonia silonia* and *Pangasius pangasius*. The common miscellaneous species found in reservoirs are *Danio spp*, *Amblypharyngodon mola*, *Puntius stigma*, *P. ticto*, *Oxygaster bacaila*, and *O. phulo*. The fishery technologists have to find an effective method to reduce the population of this species in our reservoirs. Then only it will be possible to develop fisheries of economical important species in them.

Fishing nets that are used in the exploitation of our reservoirs are not designed for the specific requirements of reservoir fishing. Although some work has been done in this respect, suitable fish gears have not yet been developed for the fishery exploitation of our reservoirs.

FISHING RIGHTS

The reservoir fisheries are mostly controlled by the state fisheries departments through the granting of fishing rights. There is no uniform system in this regard. While licencing systems are followed in the southern states, royalty system is followed in Uttar Pradesh and Madhya Pradesh. In Uttar Pradesh there is also a system under which fishing rights are given to one party and rights of purchasing the catches are given to another. Those who

RESERVOIR FISHERIES OF INDIA

In India there are about 50 large reservoirs and 475 medium and small reservoirs with a surface water are of about 3 million hectares. In the coming twenty years, an additional 3 million hectares of water area may be added, with the coming up of new reservoirs.

Although considerable investigational and developmental work has been carried out in respect of reservoir fisheries, so far no perceptible progress has been made in the effective development of this potential resource for augmenting the fish production.

BHAVANISAGAR TOPS

It is estimated that the present fish production from our reservoirs is of the order of 7 kg/ha/annum. The highest known production of 71 kg/ha/annum is reported from Bhavanisagar reservoir in Tamil Nadu followed by 71 kg/ha/annum from Gobindsagar reservoir in Himachal Pradesh. The production is stated to be 6.2 kg/ha/annum from Maithon reservoir under D.V.C. The production from Tungabhadra is 1.9 kg/ha/annum.

Indian rivers are the home of a wide range of fishes. The reservoirs inherited these fisheries with the construction of dams. The

reservoirs in Peninsular India mostly consist of *Cirrhina cirrhosa*, *Cirrhina reba*, *Labeo konitius*, *Labeo fimbriatus*, *Puntius dubius*, *P. sarana*, *P. carnaticus*, *Tor tor* etc. Apart from this, owing to transplantation, Gangetic major carps such as *Catla catla*, *Cirrhina mrigala*, *Labeo rohita* and *L. calbasu* also constitute a sizable fisheries in the South Indian reservoirs such as Mettur and Bhavanisagar reservoirs. Although efforts were made to introduce these major carps in Tungabhadra and Nagarjunasagar reservoirs, the fish have not yet established themselves in them.

CATLA GAINING IN GOBINDSAGAR

With the formation of reservoirs, one or two native species tend to develop dominance. With the passage of time, the population balance alters as had happened in the case of Gobindsagar reservoir. *Labeo dero* used to be the dominant species in this reservoir for a long time. This fishery is now on the decline giving place to catla, a fast growing major carp. In Tungabhadra reservoir cat fishes are dominant. There are indications that this fishery is gradually declining on account of the various measures taken such as continuous removal of this species through fishing efforts and

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conduct fishing are paid by the department at the specified rates. In some states reservoirs are leased out on an outright basis. Under all the systems, in most of the states, first preference is given to fishermen's cooperative societies or the fishermen. In reservoirs such as Mettur reservoir in Tamil Nadu, Gandhisagar in Madhya Pradesh and Rihand reservoir in U.P. cooperatives are fully involved in the exploitation.

BETTER INFRASTRUCTURE REQUIRED

No satisfactory system for the storage, transportation and marketing of reservoir fisheries has been developed so far. At certain places such as Mettur reservoir, Gandhi Sagar, Rihand etc. however, facilities such as cold storage and transport vans have been developed, mostly through cooperatives. These facilities have to be developed further in a suitable manner particularly in West Bengal. There is an urgent need to make a comprehensive study of the problem and to work out a blue print for providing these facilities.

EFFORTS OF CIFRI

The main effort for standardising the techniques of reservoir fishery development comes from the Central Inland Fisheries Research Institute under a programme known as "All India Coordinated Research Project on Ecology and Fisheries of fresh water reservoirs". Under this programme studies are in progress at Getalsud reservoir in Bihar, Bhavanisagar reservoir in Tamilnadu, Rihand reservoir in Uttar Pradesh and Nagarjunasagar reservoir in Andhra Pradesh and Bhakra reservoir in Himachal Pradesh. These centres have achieved some measure of progress in respect of basic studies concerning yield estimates based

on which it is proposed to develop the management policies. While this project has been advising the various state governments on various development measures that have to be adopted, no final blue print concerning the technology to be adopted for the development of reservoir fisheries has emerged.

It is difficult for the state governments to wait for a long time for the final recommendations from the project for the development of the reservoir fisheries. It is advisable that they take immediate steps for the progressive removal of undesirable species of fishes and at the same time stock the reservoirs with yearlings of major carps, and other desirable species. They have also to identify the breeding zones and ensure strict conservation measures during the season. The state fisheries departments can determine the types of gears that are best suited for the exploitation of the reservoirs. Since development is closely linked to pressures from the public for ensuring progress, it is desirable to develop fishermen colonies close to the reservoirs and enable them

to conduct fishing under stipulated terms and conditions. If necessary the fishermen can be assisted to organise themselves into cooperatives. Such cooperatives have to be given all assistance and help to function effectively. The state governments can also set up necessary infrastructural facilities such as cold storages and transportation facilities, according to the needs. The fishermen have also to be assisted by providing them with the required types of boats and nets. There has to be a machinery for monitoring the activities relating to the enrichment of the fishery resources, and fish that is removed from time to time, quantity and time to time, quantity and qualitywise.

A short term measure for the development of reservoir fisheries is the development of pen culture. This has been tried and found encouraging in certain reservoirs in Tamilnadu and in Nagarjuna-sagar.

The CIFRI can disseminate the necessary information on this technology and assist the state fisheries departments in popularising pen culture.



Integrated Fish Farming

SYAMAL KUMAR NEOGI and R. K. GULATI

The other day an old timer in the fisheries field remarked 'In my early days of service I used to feel happy if I could produce 40,000 fish seed in a season. Now that much of seed is produced in a day'. There was also a time when the belief was that ponds yielded only murels and cat fishes. Phenomenal changes in the field took place in the past three decades. Starting with culture of carps with a stocking rate of 1000 nos. and a yield of 200 kg. per acre in the fifties, we have now made a firm entry into the era of composite culture through which 4-10 tonnes of table fish are being harvested per hectare. This development is a notable achievement in India in the 20th century.

Inland fishery technologists have now moved even a step forward. A new system of integrated fish farming has been introduced and it is gaining ground. This idea is not entirely original. This system of farming is in vogue in south-east asian countries but is new to us.

THE CONCEPT

The concept of integrated fish farming is simple. Fish ponds require a profusion of food in the pond waters for the fish to feed upon. This food will develop to the required extent when there are adequate nutrients. Nutrients in the soil underneath the water are usually insufficient and therefore fertilisation or manuring becomes necessary. This costs money. Instead of spending money on fertilisers or manures, the profitable way is to combine fish

culture with tending of ducks, poultry, pigs or cattle. The droppings of these animals form an indirectly cost-free manure. The animals by themselves will fetch extra returns. Eggs of ducks and poultry birds, besides the meat, will bring additional income. Milk yielded by cows or buffalos also likewise gives added income. Pigs sold for meat provide extra earnings. These combined cultures are termed as integrated fish farming, which is a low-input technology. The output of birds, in this system, becomes an important input for fish culture.

FISH-CUM-DUCK FARMING

Ponds with an area of $\frac{1}{2}$ to 5 hectares or even more can be brought under this type of farming. Pond preparation and stocking with seed may be done as in composite fish culture with a combination of major carps and common carps and silver carp, except that no manuring or fertilisation is done. The seed to be stocked may be of a larger size (about 6000 Nos. per hectare) as ducks are prone to feed upon smaller ones. The application of mahua oil cake to remove weed fish at the normal rate of 250 ppm will also provide the initial nutrient content. After the stocking, about 500 birds per ha. may be introduced into the pond. The droppings of these ducks will amount to about 34 tonnes in a year and are adequate to produce sufficient quantities of plankton. The annual crop that can be expected per ha. is around 4 tonnes of fish and 1250 kg. of ducks and about 50,000 eggs. The income from fish @ Rs. 7/- per kg. will be Rs. 28,000/-, from ducks @ Rs. 10/-

per kg. (for 1000 kg.) a sum of Rs. 10,000/-, and from eggs Rs. 20,000/- at 40 paise per egg. The total income will thus be Rs. 58,000/-. The expenditure on fish culture part comes to Rs. 4,000/-, on duck rearing Rs. 18,000/-, and operational costs, rent on water resource, depreciation and interest may be of order of Rs. 15,000/-. Thus against an expenditure of Rs. 37,000/- the income will be Rs. 58,000/-, leaving a profit of Rs. 21,000/-.

FISH-CUM-PIG FARMING

The technology for the preparation of ponds and stocking fish under this culture system is similar to that followed in fish-cum-duck farming. However, the stocking density can be a little higher in the case of this type of farming. The component of silver carps can also be a little higher as pig droppings are likely to produce higher phytoplankton. The pig sties will be adjacent to the pond. The droppings of pigs may be led into the fish pond through channels. The material can also be collected daily and broadcast on the pond surface in a diluted form through spraying. The principles of pig-husbandry have to be followed to ensure maximum returns from the pigs. Good breeds of pigs may have to be selected for optimum results. The feeding of pigs with balanced feed is also important. The cost of fish farming in one hectare area may come to around Rs. 6,000/-, and expenditure on pig farming with 60 pig-lets in two batches may come to around Rs. 20,000/-. The other expenses such as wages, interest on working capital may be about to Rs. 10,000/-. The total cost is therefore likely to be Rs. 36,000/- per hectare. Against this expenditure, an income of Rs. 42,000/- from the sale of 6 tons of fish at Rs. 7/- per kg. can be expected.

The sale of 4.2 tonnes of pig meat at Rs. 6/- per kg. is likely to bring an income of Rs. 25,200/-. The total income will therefore be Rs. 67,200/-. The net profit from the activity per ha. is likely to be Rs. 31,200/-.

FISH-CUM-POULTRY FARMING

As in the case of duck and pig farming combined with fish culture, the working schedules for the preparation of pond and stocking it with fish seed under this system are the same. On raised enclosures over marginal areas of the pond, around 300 birds can be grown. The droppings of these birds will fall into the water. The enclosures can be cleaned everyday, allowing the water to fall into the pond. If it is not possible to have the enclosures on the marginal areas, a poultry house can be set up nearby and the droppings can be collected everyday and added to the pond waters.

The cost of the fish farming part in this system is likely to be around Rs. 5,000/- per ha. The expenditure on the poultry development may come to around Rs. 23,000/-. Other expenditure such as wages and interest on the capital may be around Rs. 9,000/-. The total expenditure is thus likely to be Rs. 37,000/-. In regard to the returns, one can expect an income of Rs. 28,000/- from sale of eggs, and another Rs. 2,500/- from the sale of birds. The total income will thus be Rs. 49,500/- leaving a net profit of Rs. 12,500/-.

FISH-CUM-CATTLE FARMING

Culture of fish in ponds where cattle are washed is a common feature in several parts of the country. The composite fish culture technique itself involves the utilisation of large quantity of cattle dung. However the system can be improved considerably to

obtain optimal results. The cattle sheds can be located close to the fish farms and the washings utilised for optimal manuring. Cattle dung is rich in nitrogen and potassium. However the quantity of phosphorous available is in traces. Therefore, in order to compensate this deficiency, it will be necessary to add fertilisers with phosphorous content in suitable quantities to the cattle dung washings. The washings have to be diluted and broadcast at regular intervals all over the pond for optimal results, taking care that excessive manuring is avoided. If there is excessive manuring, profusion of algal mats may result and lead to mortality.

The economics of operation of this type of culture will be more or less the same as from composite culture with a marginal increase in net profits.

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Our Deep Sea Fishing Boats are the Best—says Reddy

Q. What made you to choose the deep sea fishing line?

A. After Pre-University, I wanted to take up a professional course and my first choice was medicine. I could not succeed in getting a seat in any of the medical colleges. As my urge had all along been to become a professional in one subject or the other, I decided to undergo a line of education which would equip me to undertake commercial fishing. I chose this line because of my science background and aptitude towards biological sciences.

Q. Has your M.Sc. (Fisheries) degree really equipped you to enter commercial fishery field?

A. The post-graduate fisheries course at Bhopal University covered both the marine and inland fishery aspects. It is however true that the scientific part of the course was predominant. Yet, I am satisfied that I had gained the requisite background.

Q. Commercial activity can be undertaken in the fields of both marine and inland fisheries. Why did you choose the deep sea fishing line?

A. Firstly, I believed that it was a challenging line, that required the adoption of a difficult technology. Secondly I thought that this was a new line and my entry into it would be appreciated by my near and dear.

M. N. Reddy, 31 years, is a post-graduate in fisheries from Bhopal University (1974). From 1974-77, he conducted research on fisheries problems at the same university. The urge to enter the commercial field predominating, he gave up his research activity unfinished and commenced his efforts to enter the marine fisheries commercial sector. In 1977, he tried to acquire 2 mechanised boats. Although a loan was sanctioned by the Union Bank of India on the recommendation from the A.P. Industries Department, he did not avail of it and joined the management of Sujatha Sea Foods (Private) Limited and Vani Marines (Private) Limited, Visakhapatnam, with a view to gaining experience in fishing with larger vessels and in processing operations. He remained with these two firms until May 1981. Thereafter he acquired interest in Shrimp (India) Private Limited and became its executive director.

I was confident that I would derive satisfaction from doing something out of the ordinary at that time.

Q. How did you start off?

A. Initially I thought of acquiring 2 small mechanised boats. In fact, my application was approved by the Union Bank of India for a loan with the recommendation of the A.P. Industries Department. My idea in this connection was that I should first gain experience in the operation of mechanised boats and then move into the area of operation of larger vessels. However, as circumstances would have it, I could get an opening to participate as a shareholder and also on the management of M/s Sujatha Sea Foods and M/s Vani Marines, Visakhapatnam. I was with these two companies from June 1977 to May 1981. Thereafter I associated

myself with Shrimp (India) Private Ltd.

Q. You say that you participated in the management of the companies. How could you do this without having basic field experience?

A. Firstly, an offer for participation in the management was too rare an opportunity to miss for a youngster like myself. I was confident that I could pick up the intricacies of the work with the requisite application of mind and effort. There were experienced persons on the Boards of Directors of both the companies and I was sure that I could learn a lot from them. My optimism eventually proved to be correct.

Q. What were your experiences during your stint in Vani Marines and Sujatha Sea Foods?

ies and Programmes

INTERVIEW

He is now working on a project for import of two Polish vessels of 27m. length under the 1977 scheme and also pursuing an approach for operating a few bull trawlers on charter. He says that his company would eventually acquire a viable fishing fleet for sustained operations. Reddy is the first in his family venturing into a commercial enterprise. He says he is indebted to his parents, in-laws and his wife who had encouraged him to enter the line. He happens to be the youngest entrepreneur on the management of deep sea fishing company. He is happily married to Mrs. Kastori and has two daughters aged 5 and 2.

Believing that our readers would like to acquaint themselves with the way of thinking of an emerging entrepreneur, your editor interviewed Reddy. The interview ran as follows:

A. My experiences, although for a short duration of 4 years, were quite rich. I gained all round practical knowledge from the stage of securing clearances for imported fishing vessels to the operational stage. I had also the satisfaction of actively participating in the setting up of Sujatha's processing plant and its operation. I had the opportunity of attending to the various formalities connected with the starting of work at new plants. I received considerable guidance from Mr. M. Laxmayya, the Managing Director of both the companies and also from your goodself. This guidance was a great asset to me.

Q. You held important posts in the two companies. And obviously you had job satisfaction. Why did you then leave the firms?

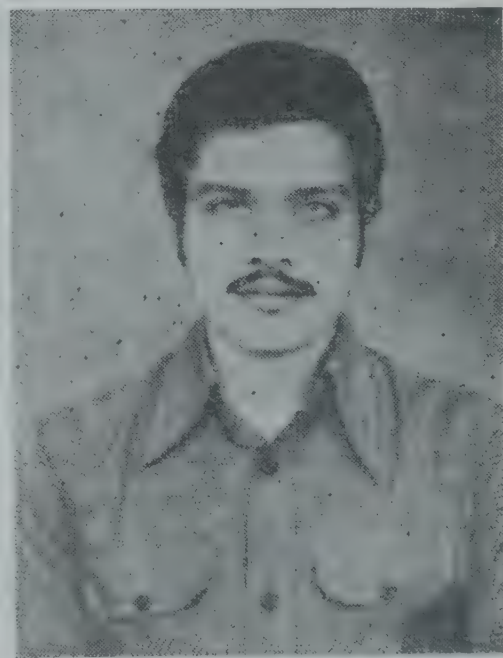
A. I had to leave the companies with considerable reluctance.

There were certain situations to which I had to yield. Apart from this, an excellent opportunity to take part in the management of M/s Shrimp (India) Private Limited with greater involvement presented itself. I was also specially attracted by the dynamic qualities of Dr. C. Babu Rao, Chairman and Managing Director of Shrimp (India). Dr. Babu Rao is a man with wide experience and is associated with several commercial enterprises.

Q. What are your experiences in the new company?

A. I became the Executive Director of the new company. My association with Dr. Babu Rao enabled me to imbibe his inimitable qualities of functioning with equanimity, taking quick but firm decisions, maintaining good relations with all, and above all, the manner in which practical

approaches have to evolved to follow up developing situations. I feel that I am lucky that I got a chance to work with Dr. Babu Rao and learn a lot from him. We work as a team with a common purpose. As matters stand, we have initiated action in two directions i.e. import of deep sea fishing vessels from Poland and chartering of bull-trawlers. We have achieved significant progress in both the lines although there have been some delays and problems. Although the clearance of our charter application was delayed for nearly twelve months, it was our good fortune that Mr. Chur Chi Sang, Managing Director of Southglory International (Pte) Ltd. Singapore, our



M. N. REDDY

principal for the supply of vessels on charter, was highly understanding and co-operative. But for the extension of validity of offer given by him from time to time we would have landed in serious troubles.

Q. What are the future plans of your company?

A. We want to reach in the first instance the stage of acquiring Polish vessels and also operating bull trawlers on charter. Thereafter we want to acquire a further number of vessels of our own as part of the charter deal. Once we consolidate our position at this stage, we would take steps to expand our fishing activities on diversified lines, set up our own processing facilities and undertake exports.

Q. As a young entrepreneur what are your views on government's policies and programmes in the field of development of deep sea fishing?

A. I must say that the policies and programmes of the government in the matter of development of deep sea fishing are the best and very encouraging. Government have made provision of granting loans to the extent of 90% of the cost of imported vessels and 95% of the cost of indigenous vessels with a nominal rate of interest. Government have also recently issued a notification inviting applications for the import of fishing vessels. There are many other incentives offered by the government.

While the framework for developmental assistance sounds well on paper, however, in actual

working, entrepreneurs face several difficulties. It takes an enormously long time for any application to be cleared by the government. This is my own experience. At the time of presenting our applications I visualised decisions from the government in a particular manner based on logic. However, the decisions turned out otherwise. Long delays in decisions and frequent changes in the guidelines are a discouraging factor. Our application for loan for the import of Polish trawlers, already about a year old, is still pending clearance. Regarding charters, when we made our applications in March 1982, the guideline was that we should provide a bank guarantee of Rs. 2 lakhs for vessels chartered, upto 5 units. Later on we came to know that in another case a bank guarantee of Rs. 2 lakhs was prescribed per trawler. In our own case, however, the Ministry stipulated a bank guarantee for Rs. 1 lakh and a cash deposit of another Rs. 1 lakh as guarantee for each vessel. Unexpected changes of this kind make the life of an entrepreneur miserable and throws all his financial calculations awry.

It looks to me that the government do not treat the deep sea fishing as an industry. Till such time this is specifically done and incentives, as applicable to the other developing industries are extended to the deep sea fishing, expansion of the industry may continue to suffer.

Q. What do you expect the government to do for the promotion of the deep sea fishing industry?

A. This is a difficult question to answer at the uptake. However, I

feel that the government should take quick decisions on the applications from the industry one way or the other within a stipulated period. I am sure that those in authority would certainly understand that entrepreneurs have a schedule connected with financial aspects and commitments to others and if decisions are delayed, entrepreneurs suffer and sustain losses. All these affect the pace of implementation of development programmes. Government should not also change guidelines relating to the industry frequently and at short notice. Further there should be a sympathetic approach towards the needs of the entrepreneurs and there should be emphasis on maintaining good public relations. Senior officers in the fisheries division of the Department of Agriculture should be easily approachable to the representatives of the enterprises to represent their difficulties.

Q. Last question. I understand that you visited several foreign countries to make a study of the opportunities to avail of the expertise in those countries for the promotion of your own activities. Can you say something on this?

A. I had the opportunity of visiting Thailand, Singapore, Hong Kong, South Korea, Japan and Taiwan. The tremendous development achieved, particularly in Taiwan and Japan was an eye-opener to me. The Taiwanese port of Kaohsiung has a large number of vessels operating from that base. Our deep sea fishing activities look so very insignificant compared to the state of development in Taiwan and other far east countries. It may take several decades for us to reach that level of development at the present pace.

New Scheme for Acquisition of Fishing Vessels

The ministry of agriculture has notified on 16 December 1982 a new scheme inviting applications from entrepreneurs for the acquisition of fishing vessels. The public notice is reproduced hereunder.

PUBLIC NOTICE DEEP SEA FISHING INDUSTRY

Applications are invited for acquisition of deep sea fishing vessels by the Indian companies. These vessels should be more than 20 metres in length, and, preferably, they should be other than shrimp trawlers.

2. The Government have declared 200 nautical miles from the shore as the Exclusive Economic Zone. This Zone is endowed with rich fishery resources. Information on the fishing grounds, fish resources and the effectiveness of fishing gear etc., are also made available by the Exploratory Fisheries Project of the Government. The Government have constructed a number of major and minor fishing ports to provide landing and berthing facilities to large vessels. There is a scheme of exemption of excise duty to the extent of 50% on high-speed diesel used by deep sea fishing vessels.

3. The Shipping Development Fund Committee provides loan for eligible companies other than large houses for the acquisition of deep sea fishing vessels. Broadly speaking, loan is limited to 95% of the cost of an indigenous vessel and 90% of the cost of an imported vessel. Rate of interest, at present is 7.5% for imported and 6.5% for the indigenous vessels, if principal and interest are

paid regularly. Terms of repayment are easy—repayable in 16 years with moratorium for one year. There is a scheme of subsidy to the Indian Shipyards on the construction of indigenous vessels by the Ministry of Shipping and Transport.

4. Applications for acquisition of vessels should be for one of the following two categories—

(a) INDIGENOUS FISHING VESSELS:

Applications for loan for indigenously constructed vessels (new) of more than 20 metre overall length alone will be considered. Applicants should get complete and detailed offer from one of the reputed Indian Shipyards, list of which can be obtained from the Ministry of Shipping and Transport, New Delhi.

(b) IMPORT OF FISHING VESSELS:

Import will be allowed only in cases where the vessels cannot be constructed to specifications in India within a reasonable period. Applications for import should be accompanied by full details of the proposed vessel, terms of payment and the details of the foreign shipyard. Second-hand vessels can also be considered for import. These vessels, ordinarily should not be more than 5 years old and should be covered by a certificate of sea-worthiness by a recognised agency.

5. All correspondence in respect of this Public Notice may be addressed to Fisheries Development Commissioner, Department of Agriculture & Cooperation, Room No. 153, Krishi Bhavan, New Delhi-110 001.

6. This Public Notice should not be constructed to carry any financial obligation. Each case will be processed and suitable orders will be issued. The facilities enumerated in paras (2) and (3) are subject to change without notice.

FISHING CHIMES SUBSCRIPTION TARIFF

Duration	INLAND	FOREIGN
	(in equivalent foreign currency)	
	Rs.	Rs.
Monthly	13.50	27/-
Quarterly	40.50	70/-
Half-yearly	81.00	140/-
Annual	162.00	280/-

Manager, Fishing Chimes 15-10-3 Krishnanagar, Visakhapatnam-530 002.

BRACKISHWATER FISH FARMING:

Ingredients of the Centrally Sponsored Scheme

The Ministry of agriculture has recently introduced a centrally sponsored scheme for the development of brackishwater fish farming. The objective of this programme is to develop 1500 hectares of brackishwater area, in coastal areas for fish/prawn culture for the benefit of the rural population, with particular preference to weaker sections of the society. The project also aims at increasing the prawn production through a systematic culture approach based on the technology developed by various research institutes.

IMPLEMENTING AGENCY AND LOCATION:

The project will be located in the States where suitable brackish-water area, inland saltlakes and brackish groundwater resources are available. The states tentatively identified for implementation of the programmes are Andhra Pradesh, Gujarat, Karnataka, Kerala, Maharashtra, Orissa, Tamil Nadu and West Bengal (8 maritime states) and Haryana, Punjab, Rajasthan, (3 inland states). The scheme would be implemented by the state public sector undertakings where they are in position and in other states through State Fisheries Department.

PROJECT COMPONENTS:

The project-components are:

Selection, identification, reclamation and conversion of brackishwater areas into fish farms by providing common facilities

such as supply channel, feeder channel, bundh, inlets, outlets, etc. These works would be analogous to typical irrigation projects where the government bears the expenditure on capital investment for construction of common facilities and the farmers have to pay only a relatively modest amount as water supply charges. The State Government/Public Undertaking would take up the work relating to identification and development of suitable brackish-water area and settle them to the farmers on long term lease.

Identified farmers would be trained in brackishwater farming practices for a period of 3 months in two spells. Developed brackish-water areas at the rate of 1 to 1½ ha. per fish farmer family will be leased out to the trained farmers. While selecting the beneficiaries for implementation of the programme preference would be given to those who belong to the weaker sections of the society with very low level of income to sustain their family. Initially the fish/prawn seed would be supplied through collection from natural sources. As and when more and more brackishwater areas are developed for farming purposes, commercial prawn seed hatcheries in each of the maritime states would be set up to supplement seed from natural sources.

PATTERN OF FINANCIAL ASSISTANCE:

The cost on the project items, such as capital expenditure on civil works, conversion of brackish-

water area into farm ponds, establishment of prawn seed hatcheries, laboratory equipment, furniture, etc; recurring expenditure such as, subsidy to farmers for inputs, training of farmers, operation of the prawn seed hatcheries, incremental staff cost (for extension staff and hatchery staff), contingencies, T.A., etc. would be shared on 50:50 basis between the Government of India and Project implementing authorities.

The farmers selected for training would be eligible for a stipend of Rs. 9/- per day per trainee and actual bus/train fare for practical field visits. The duration of the training will be 3 months in two spells. The cost on this account would also be shared on 50:50 basis between Government of India and the states.

Financial assistance for the inputs to be given to the farmers will be in the form of 25% subsidy and 75% loan. The input cost would be Rs. 8,000 per hectare to meet the cost of manure/fertilizers etc. 25% of Rs. 8,000 (Rs. 2,000/-) per ha. will be the ceiling for subsidy which will be provided by the state government and this would be shared on 50:50 basis between Government of India and the States. The remaining 75% Rs. 6,000/- per ha. would be obtained by the farmers as loan either from the State Government or the financial institutions. The subsidies will be admissible only for the first year of fish farming.

PATTERN OF EXTENSION SUPPORT:

For effective organisation/extension support, the States would strengthen their organisation with incremental staff as indicated hereunder. The incremental staff for extension support will consist of extension workers and Extension Officers on the basis of the water area developed on the scale given. For each prawn seed hatchery, one hatchery operator, two hatchery technicians, four field assistants, two watch and ward staff will be required. Incremental staff under the programme of Development of Brackishwater Fish Farming for which Central assistance will be admissible—

For the extension work:

1. One Extension Worker for every 50 ha. brackishwater area
2. One Extension Officer per State

Rs. per annum per cost
(exclusive of allowances
upto 60%)

4,200

8,400

For the Prawn Hatcheries:

1. Hatchery Operator (One per hatchery)
2. Hatchery Technician (two per hatchery)
3. Field Assistant (Four per hatchery)
4. Watch & Ward staff (two per hatchery)

8,400

4,200

2,200

2,200

Getting the Best Out of Marine Catches Process for Fish Meal and Oil

The Central Food Technological Research Institute, carries out studies to improve the techniques of heat processing, preservation and distribution of fish and to utilize low-market value fish and fish waste gainfully.

The institute has standardized a process for production of fish meal and oil (from sardines) which is now ready for commercial utilisation.

Since there is a growing demand for fish meal and oil, there is scope for establishment of units for their production, based on modern technology, near coastal areas where suitable raw materials

are available as by-catch without much of market value. As an important animal feed ingredient, the demand for fish meal is expected to grow in line with the expansion programmes under way for livestock development in the next 25 years. Fish meal is also in great demand in international markets.

NEED FOR BETTER TECHNOLOGY

India's annual production of fish meal is around 20,000 tonnes and fish oil around 8,000 tonnes. Because of a general lack of specialised knowledge of processing techniques and facilities, the

products manufactured in India are, by and large, of poor quality. This explains why bulk of the fish meal produced in the country is marketed as manure, and oil is used largely for painting traditional wooden boats, in leather processing, tempering of metals, and in making insecticidal soaps.

Presently, good quality fish meal is produced only by a few imported modern plants such as those located at Jaffrabad, Bombay, Malpe, Mangalore, Goa, Calicut, Azhikode and Mandapam.

It is to assist the traditional industry that CFTRI standardised the process for production of good quality oil and meal from oil-sardines. A pilot plant was set up at CFTRI Fish Technology Experiment Station at Mangalore, based on which the technology is now being offered by the institute.

The process know-how is available from National Research Development Corporation of India, New Delhi, on a lump-sum payment of Rs. 10,000 as process fee.

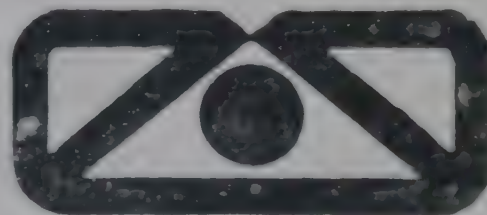
Our Modest Contribution to Indian Deep Sea Fishing Industry

AS AUTHORISED REPRESENTATIVES OF HOLLANDCRAFT, HOLLAND (GROUP OF 24 DUTCH SHIPYARDS) WE ACCOMPLISHED THE IMPORT OF FIRST BATCH OF FIVE COMBINATION TRAWLERS, PRESENTLY UNDER OPERATION FROM VISAKHAPATNAM. THE VESSELS ARE STURDY AND FITTED WITH WORLD'S BEST EQUIPMENT WHICH MAKES THEM DURABLE AND DEPENDABLE.

WE HAVE JOINED WITH WORLD LEADERS IN DEEP SEA FISHING VESSEL INDUSTRY ARRANGING COLLABORATIONS AND JOINT VENTURES AND IMPORTS OF FISHING VESSELS.

PLEASE CONTACT FOR FURTHER INFORMATION:

UniGeneral



3 B Vandhana, 11 Tolstoy Marg, New Delhi-110001 Tel : 44888, 44889 Telex : 031-3894 UNTX IN

INTERNATIONAL SUPPLIES AND SERVICES.

The total investment for setting up a plant to process 30 tonnes of raw materials per day is estimated at Rs. 1.47 million.

After process release, CFTRI provides consultancy to interested plants. The engineering capability for the fabrication and manufacture of equipment, plant and machinery is available in the country. Presently, the institute is assisting the Karnataka Fisheries Development Corporation to set up a commercial plant at Karwar.

PILOT PLANT PRODUCTION OF CHITOSAN

Based on the know-how developed earlier, a 250 kg/hour capacity pilot plant has been designed and erected by CFTRI at the Industrial Estate, Mangalore (Karnataka) for the production of Chitosan—an organic marine chemical from squilla and prawn waste. With the help of the data obtained from pilot plant production, design details and engineering inputs have been worked out for commercial size plants.

Squilla, a shell fish now going waste is available from freezing plants. The intermediate product chitin (poly-N-acetyl-D-glucosamine) could be prepared and stored for subsequent conversion into chitosan.

Chitosan is a very effective flocculating agent and finds wide application in water clarification, effluent treatment, waste-water treatment and other processes involving sedimentation of suspended solids. It is reported to be superior to alum in water purification. It has various other uses also, for example in colour printing of textiles, clarification of wines and removal of heavy metal from water.

A plant with a capacity to process 10 tonnes of raw materials a day will cost about one million rupees. Chitosan can be produced at a cost of about Rs. 35 per kg. depending on the cost of raw materials. Considering the seasonal nature of the raw material, the project can be bifurcated with small units being set up at the fishing centres to produce chitosan. Subsequently during off-season the manufacture of chitosan from chitin can be taken up at a centralised processing facility.

An extensive literature analysis premises likely markets in the future for chitosan provided it could be produced and marketed at a reasonable price.

A NEW APPROACH TO BOOST UTILIZATION OF UNDERSIZED FISH

A novel method of controlled heat-treatment of under-utilized and undersized fish has opened up a new outlet for those pelagic species which form a high percentage of fish catches.

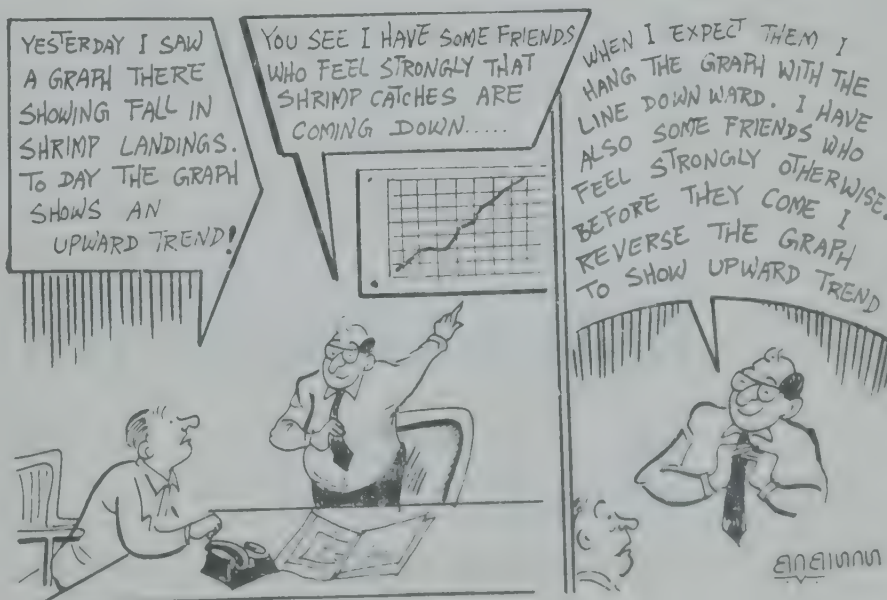
These species of tiny fish usually have too many bones in the

flesh—and some varieties even lack flavour; hence, they are generally considered unsuitable for table use. So far, this kind of fish is sundried either for human consumption or for animal feed.

By a technique of thermal processing, or controlled heat treatment, developed by CFTRI, the bones of the fish are softened, while muscle texture, which is a highly desirable quality in fish, is preserved. In addition, the flavour is improved due to chemical changes that take place in the muscle components. The softened bones add to the calcium content of the edible portion.

Adoption of this technique widely can lead to a greater utilization of fish species of low commercial value, fetch a better income for the fishermen, and offer a variety of convenience products to the consumer.

The 'thermal processed' fish is expected to be particularly valuable for use in households and catering establishments for preparation of cutlets, frozen curry, and bread fish.



DEEP SEA FISHERY

PROJECT FEASIBILITY STUDY
AVAILABLE FROM SPECIALIST
CONSULTANTS

CONTENTS COVER :

- ✿ RESOURCE AVAILABILITY
- ✿ BASE PORTS
- ✿ SELECTED FISH SPECIES
- ✿ ECONOMIC PROFITABILITY
- ✿ MARKETING FACTORS
- ✿ FREEZING ON BOARD
- ✿ VESSEL CHARACTERISTICS
- ✿ CURRENT STATUS AND FUTURE TRENDS
- ✿ JOINT VENTURE FOR CHARTERING

Write to :

Golden Fisheries (Pvt) Ltd

**B-81 - 1st FLOOR
DEFENCE COLONY
NEW DELHI 110024**

EFP Locates New Grounds on South Andhra Coast

Around 1977, Exploratory Fisheries Project made history by locating shrimp grounds off North Orissa and West Bengal coasts. The organisation has made a second impressive contribution to the deep sea fishing industry by locating rich fishing grounds south off Kakinada. The credit for the discovery goes to the unit of EFP at Visakhapatnam. The grounds were located by M.T. "Matsya Darshini", a Danish vessel.

The discovery of shrimp grounds along North Orissa coast, subsequently extended to sandheads, helped in the continually upward trend of shrimp catches from the north east coast, in spite of increase in the number of units operated. Coming in the wake of this, the present discovery of new grounds in the southern Bay of Bengal opens up new fishing grounds for exploitation.

M.T. "Matsya Darshini" sailed from Visakhapatnam on 11th Nov. 1982 with 30 tonnes of ice as its refrigerated system was not properly working. She did 47 hours of fishing between Sacramento shoal near Godavari mouth and Narsapur point at a depth 35-40 fathoms. She had a haul of 30 tonnes, mostly of quality fish. As she had no more ice after this catch, she returned to the base.

After unloading the catches, she sailed on 23 Nov. 1982 again with 30 tonnes of ice. During this voyage, the vessel operated between Machilipatnam and False Divi point at a depth of 35-40 fathoms for over 45 hours, landing a catch of 35 tonnes of fish, mostly of pomfrets, mackerels, perches, mangoe fish and butterfly. One haul before leaving the ground contained 5 tonnes of fish of which 3 tonnes were pomfrets of 300 grams

and above. After full utilising the ice, the vessel returned on 30 Nov. 1982 for unloading.

Thus during the two trips, in all, 65 tonnes of fish was caught in 92 fishing hours. It is understood that 50% of the catch was of good quality. Capt. J. Thiagraj who was

the skipper, expressed the view that there was good scope for stern trawling, bull trawling and gill-netting in the areas covered. He feels that if proper exploitation is done in the South off Kakinada and upto Krishnapatnam, there is a distinct scope for locating rich fishing grounds. It appears that the day is not very far when the east coast will catch up with west coast in regard to the potential and quantum of exploitation.



Q. I understand that several of the vessels chartered by Indian companies are pair trawlers. What is meant by this?

**P. Ramakumar
Bombay**

A. Trawling, which means dragging a conical net (trawl net) through water is done by a trawler covering a long distance. As the net is so towed, fish enter into the last and narrowest section known as the Cod-end, from where they cannot escape unless the net gives way. When the dragging is done from the back of the vessel the activity is known as stern trawling. When this is done from the sides it is known as side-trawling. When the net is dragged right on the bottom the fishing effort is known as bottom trawling. When the net is dragged in the columnar layer, it is referred to as mid-water trawling.

In single boat trawling, as outlined above, the mouth or the entrance to the net cannot be increased beyond a limit. This restricts the coverage of the net in the water while being dragged. In order to cover a wider area, the technique of pair trawling or bull trawling was developed.

Under this system, two boats with identical horse-power and winch capacities are used. A single net with wide-mouth and proportionately larger dimensions in terms of length is dragged by two trawlers. This is like two bullocks dragging a cart and hence the technique was christened as bull trawling. The net operated between the two trawlers has a wider mouth opening which provides a greater area of water for the net to pass through. This enables a large quantity of fish to be caught. The net has two warps on either side from the wings at the front end. Each of these are connected to the winches on each of the trawlers.

The release of the net, the dragging through the water, and the hauling call for considerable skill and precision. While the net is dragged by two vessels, the hauling takes place on one of the vessels only. In pair operation both bottom and midwater trawling is done.

Taiwanese and Hongkong fishermen specialise in bull trawling.

4DAY CHRONICLE

VISAKHAPATNAM:

Shrimp landings from trawlers continued to be encouraging, although there was a reduction in the landings to a level of around 3.5 tonnes per trawler per voyage from the level of around 5 tonnes last month. The reduction in catches was compensated by the higher percentage of tigers and whites in the landings. The size of browns was much smaller than before. Headless tiger and white commanded a price of Rs. 138 - and Rs. 128 - respectively per kg. Browns fetched a price of Rs. 75 - per kg. One of Britannia's trawlers (BLUE BANANA) landed 6.2 tonnes in one voyage, the highest in the month of December 1982. One of Vani's trawlers also is stated to have landed 5.5 tonnes of shrimp in a voyage in the month. One of the trawlers of Marine Fisheries brought a catch of 5 tonnes of shrimp in a voyage.

Regarding mechanised boats, most of them have taken to voyage-fishing for 2 days or more. Each boat was landing 30 kg. of brown and 5 kg. of whites and tigers.

Tata and Marshall trawlers restored their fishing operations on a continuing basis, in spite of the unjustified trouble created by the crew of their vessels. They could do this by employing outsiders. The agitating floating staff continued their unethical activity of writing slogans on the walls of fishing harbour.

The Tata Fisheries Karmachari Union was in a mood of desperation to achieve its demands. Earlier,

on 29th November when TATA SIDDHI was about to sail with outside crew, the union workers prevented the crew members to board the vessel. The police were then called in by the company. Some of the agitators were apprehended by the police, while some others either jumped into the water or climbed up the mast and outriggers to prevent apprehension. The police used a ladder-jeep and brought down all the agitators. All this created considerable commotion at the fishing harbour. Altogether 42 agitators were apprehended and detained at the central jail, Visakhapatnam. No bail was granted initially, but later the agitators were released on bail under certain conditions. As the Tata Fisheries Karmachari Union is affiliated to AITUC, their agitation had gained considerable support from the body. The leader of the agitating members, Mr. Krishnan, however escaped from being apprehended by the police. After all this drama, M.T. TATA SIDDHI sailed on 30th November 1982. The situation became calm thereafter.

The terminated crew of Marshall Sea Foods were on an indefinite relay hunger strike and later on a sit-on strike since 21st November 1982. They set up a tent with many banners against the management hung around, close to the No. 1 police station. As there was no response, some of the agitators started trying for other jobs. Subsequently, the police removed the tent and sent the strikers to jail.

For the first time, political parties have started wooing fishermen. 'Telugu Desam' included the welfare of fishermen in its election manifesto promising their welfare, better prices for their catch, exclusion of middlemen and providing facilities for the education of fishermen. On behalf of the Congress I, the Prime Minister promised the setting up of a national fishermen's welfare fund. The Agricultural Minister, Mr. Rao Birendra Singh also visited Visakhapatnam, Kakinada and other centres. In his speeches, he covered the problems of fishermen and assured help.

The fishing harbour had, of late, been attracting motion picture shooters. One movie by name 'SAVAAL' with fishing boats and trawlers and fishing harbour as the background was shot, substantially at the Visakhapatnam Fishing Harbour.

KAKINADA:

The average shrimp landings of brown were of the order of 5-10 tonnes a day valued at Rs. 60 - per kg. Poovalan at 10-15 ton a day valued at Rs. 6 - per kg. The white and tiger landings were negligible. The selling price for these was Rs. 100 - per kg.

PARADEEP:

The operations at Paradeep were closed down for some time as the exporters reduced procurement prices by Rs. 2 - per kg. There was a meeting held between the producers and exporters, later on, at which it was agreed that the purchase price would be reduced by Re. 1 -. Thereafter mechanised boats started sailing again. It is understood that most of the catches were procured by George Math, Puri Marine and Hindustan Lever.

ASTARANG:

About 60-70 mechanised boats of Andhra were operating from this base. The shrimp landings were reported to be good, each boat landing on an average about 100 kg. of tiger and white per day. The producers were unable to sell their catches for the reason that none of the processing companies could send their vehicles for collection owing to threats from Paradeep boat owners association. They were asking the producers and intermediaries to bring the

material to the factory when only they would be able to purchase.

OTHER CENTRES:

The shrimp landings at Mandapam and Mallipatnam per day were of the order of 10 tonnes.

At Cochin, poovalan landings were between 10-15 tons. The shrimp fishing at Calcutta/Balugan was almost over. Pomfret landings at Porbandar gained momentum. It is stated that fishing by Taiwanese chartered vessels off Goa was encouraging.

The prevailing shrimp (headless) raw material prices at Visakhapatnam at the end of December 1982 at Visakhapatnam for catches from mechanised boats were Rs. 115/- for tigers and whites and Rs. 75/- for browns, per kg. In regard to trawler catches at Visakhapatnam, Tigers, Whites and Browns commanded prices at Rs. 138/-, 128/- and 75/- respectively per kg. At Kakinada whites and tigers were sold at Rs. 100/- per kg. while brown and Poovalan commanded a price of Rs. 60/- and Rs. 6/- respectively.

MARKET TRENDS

The market for export of shrimp for Japan is buoyant. While Japanese yen has strengthened itself, the export prices for all categories of shrimp is on the increase. Buying by Japanese

parties has been brisk, as there is a shortage of shrimp in Japanese market. The following are the prices towards the end of December 1982:

JAPAN:

Type	Count Range	Price Range per kg/US \$
HL WHITE	8/12-71/90	16.00-5.00
HL BROWN	16/20-91/110	14.50-3.40
PUD	80/120-300/500	5.30-2.70
	Broken	1.70

U. S. A.:

Type	Count Range	Price Range per lb/US \$
PD BLOCK	130/200-300/500	2.00-1.40
	Broken	0.90

Pomfrets exported to gulf countries commanded a price around U.S. \$ 2.60 per kg. Frozen mackerel fetched a price around U.S. \$ 1.10 per kg.

Shrimp catches along the upper east coast continued to be good although on a slightly reduced scale, landings being around 4 tonnes per voyage per trawler.

ADIZ

1. The Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act was enacted by Indian Parliament on—

a) 28 Sept. 1981, b) 18 Sept. 1981, c) 8 Sept. 1981

2. Under the Maritime Zones of India Act, the term 'maritime zones of India' means,—

a) territorial waters of India, b) exclusive economic zone of India, c) territorial waters of India or the exclusive economic zone of India

3. Under the Maritime Zones of India Act, within any maritime zone of India, and with permission for Central government—

a) owners of foreign fishing vessels only can operate their vessels, b) Indians alone can charter and operate foreign vessels, c) owners of foreign fishing vessels with a license and Indians with a permit can operate foreign fishing vessels.

4. Vessels with permissions for operation of foreign vessels on charter prior to the promulgation of the Maritime Zones Act—

- a) stand cancelled, b) the permissions granted will continue to be in force if the terms and conditions are not inconsistent with the act, c) require confirmation by a special order.

5. Any foreign vessel entering any maritime zone of India without a valid license or permit—

- a) is liable for confiscation, b) shall keep the fishing gear, if any, while in surh zone, stowed in the prescribed manners, c) shall report her presence while in the zone to avoid apprehension.

6. A foreign vessel in any Indian maritime zone—

- a) is free to conduct scientific research, b) is prohibited from conducting scientific research, c) conduct scientific research with permit from the central government.

7. When a foreign vessel committing an offence under the maritime zones Act, an authorised officer

- a) can pursue her beyond the limits of the exclusive economic zone and exercise powers of arrest to the extent recognised by International law and state practice, b) cannot pursue a vessel beyond the limits of the exclusive economic zone, c) can pursue only with special permission from central government.

8. Licenses for fishing in any Indian maritime zone are issued—

- a) only to foreign vessel owners, b) may be issued to Indian nationals operating foreign vessels, c) to both.

9. Permits are issued for operating foreign fishing vessels by—

- a) Foreign nationals, b) Indian nationals, c) both

10. Fishing without license in any area within the territorial waters of India is punishable with—

- a) imprisonment for a term not exceeding three years or with fine not exceeding rupees fifteen lakhs or with both, b) imprisonment for a term not exceeding three years, c) with fine not exceeding ten lakhs.

11. Whoever contravenes the provisions of any license shall be punishable with—

- a) Imprisonment for a period not exceeding one year or fine not exceeding rupees ten lakhs or both, b) with fine not exceeding rupees ten lakhs, c) with imprisonment for a period not exceeding two years.

12. Whoever contravenes the provisions of any permit relating the area of operation or method of fishing shall be punishable—

- a) with fine not exceeding rupees five lakhs, b) with fine not exceeding rupees ten lakhs, c) with

fine not exceeding rupees five lakhs or imprisonment for one year or both.

13. Whoever contravenes the provisions of any permit or the area of operation or method of fishing shall be punishable—

- a) with fine not exceeding rupees one lakh, b) with fine not exceeding rupees fifty thousand or imprisonment for one year or both, c) with fine not exceeding rupees fifty thousand.

14. Where any foreign vessel is found in any maritime zone of India without a valid license or permit the owner or master of such vessel shall be punishable—

- a) with fine not exceeding ten lakh, b) with fine not exceeding five lakhs or imprisonment not exceeding one year or both, c) with fine not exceeding five lakhs.

15. Offences under the Maritime Zones Act can be tried by—

- a) Any magistrate, b) No court inferior to that of a Metropolitan Magistrate or a judicial Magistrate of the first class, c) Any high court.

Answers on p. 60



TAMILNADU NEWSLETTER

V. KRISHNASWAMI
Our Madras Representative

RAISING RESERVOIR FISH PRODUCTION

In Tamilnadu all major reservoirs are under the control of the state fisheries department and the Tamilnadu fisheries development corporation limited, for the purpose of fisheries development. The water spread area of all reservoirs is about 60,000 hectares. Average production of fish from the reservoirs is estimated at 25 kg. per hectare as compared to the national figure of 7 kg. per hectare. According to experts production of fish from reservoirs can reach an average of 100 kg. per hectare by scientific management, effective conservation and exploitation.

It has been realised that fish production from reservoirs in the country can be considerably increased by laying down proper scientific management practices. Average fish production from reservoirs in the country is only about 7 kg/ha/annum at present. The extent to which the potential has remained untapped can be realised from the fact that the production from Bhavanisagar Reservoir is about 80 kg/ha/annum and Gobindsagar reservoir is 30 kg/ha/annum.

During the Sixth Plan period it is proposed to step up the per hectare production in Tamilnadu reservoirs to 50 kg. A sum of rupees one crore has been provided in the Sixth Plan for management of these reservoirs, taking over newly-formed reservoirs and also large inland waterspreads for development including measures for effective stocking with quality seeds and

providing suitable crafts and effective gears at all reservoirs for intensive exploitation.

There are fish seed farms adjoining most of the reservoirs in the state, where the production of fish seed through the technique of induced breeding is adopted. In order to augment the storage capacity at the seed farms, the state government has recently sanctioned the construction of additional nurseries at each of the farms. Work at one of these farms at Sathanoor is stated to be now nearing completion. It is expected that, this additional facility created at a cost of Rs. 19 lakhs, will help in the expansion of the induced breeding activities.

FISH FARMER'S DEVELOPMENT AGENCIES

The first fish farmers' development agency in Tamilnadu was established at Thanjavur in 1976. The main objective of the agency is to help the fishermen or anyone interested in taking up fish farming in getting suitable waterspread on long lease, to help in getting loan for renovation of tanks, ponds or derelict waters with 25% subsidy, to train the farmers in composite fish culture free of cost, to provide quality fish seed for stocking the waterspreads, to help them to follow suitable fertilisation and feeding schedules and to achieve an average production of about 1500 kg/ha. After Thanjavur three more agencies have been set up with the help of the central government in the districts of Tiruchi, Madurai and Dharmapuri.

The State government has recently sanctioned the setting up of fish farmers development agencies in Tirunelveli, South Arcot, Chingalpat and Periyar districts, out of its own funds.

COMPOSITE FISH CULTURE

During the sixth plan period, in order to popularise composite fish culture, it is proposed to establish ten additional agencies, each agency to cover an area of 200 hectares. Each agency will be provided with a sum of Rs. 20 lakhs to popularise inland fish culture in selected perennial and long seasonal waters. During the sixth plan, two agencies per year will be established at a total cost of Rs. 40 lakhs per annum. An average of 1500 kg. per hectare from these waters is expected and the estimated production from 2000 hectares of waterspread will be 3000 tonnes per annum at the end of the sixth plan. These agencies will encourage all fish farmers in the area to take up the package of practices advocated by the department to step up fish production increasingly in the state.

WIDESPREAD STOCKING

Major and minor irrigation tanks form nearly two thirds of the inland waterspreads in the state and their present per hectare production is hardly 150 kg. Their fishery rights are now vested with the public works department or with revenue department or with panchayat unions and panchayats. It is proposed to stock these waters intensively with fish fingerlings by the fisheries department irrespective of the ownership of the waters in a phased programme so as to double their present production at the end of the plan period. About 120 million fingerlings will be required for stocking these waters

annually. By such stocking at the end of the sixth plan, fish production is expected to go up to 60,000 tonnes from the present level of 30,000 tonnes per annum.

FLOATING FISH CAGES IN VELLORE FORT MOAT

A new trail has been blazed by the Tamil Nadu fisheries Development Corporation through the introduction of plastic screen cages in the Vellore fort moat for the production of major carp seed for stocking purposes. The introduction of this technique has the effect of minimising the need for the construction of traditional type of fish seed farms incurring heavy expenditure, at places where water bodies for using cages are available.

The floating fish cages, made of velon screen, on the lines of hapas, with dimensions of 10m × 4m × 1m each are tied to bamboo poles at the top and bottom sides, and on vertical sides. The cages float with the help of empty oil tins. The cages are anchored at any desired depth. It is stated that the cost of each cage is around Rs. 2,000/-. In each cage about 25,000 nos. of early fry are stocked. The fry are given artificial feed two times a day. The feed consists of ground-nut oil cakes and rice bran. Early fry is raised in the cages to the stocking stage in about 30 days. The early fingerlings so grown are supplied to fish farmers and panchayat unions for stocking in tanks, ponds and reservoirs. The recovery of fingerlings is stated to be at 75%.

The introduction of this technique has made the economic value the most attractive at once. Besides the normal crop of fish from the moat (recently a production of 53 tonnes was achieved in 4 ha. area of the moat), the introduction of this

technique has led to considerable additional income. Further, the introduction of the technique has

opened up avenues for the spread of the technique in other waters conducive for its adoption.

The National Association of Fishermen Wants Fishermen Welfare Fund

The National Association of Fishermen has recently appealed to the central government to set up a national welfare fund for the fishermen. The president of the association, Mr. K. Subramanyam, suggested in a memorandum that the fund may be raised by levying a cess of 10% on export earnings from marine products. The association also suggested the creation of a national fishery bank with 50% of the cess collected from the supply of machinery and equipment. It was pointed out that the population of 12 lakh fishermen was forced to live in dire plight, for want of institution of welfare measures. It was pointed out that an FAO survey revealed that only 39% of returns from sale of sea fish reach the fishermen, the rest going to middlemen and merchants.

Another suggestion of the Association was that a coastal constituency may be created to enable fishermen to elect their own representatives.

Quoting from a report of Task Force, appointed by the Ministry of Commerce, the memorandum observed that 75% of the fish landings were from traditional craft, while the catches from mechanised boats were only 25%. It was emphasised that the

back-bone of the marine products industry was the small scale sector. It was also pointed out that while the larger houses were merely acting as merchant exporters and they were not contributing to the increase in fish production. Since the private entrepreneurs had not been coming forward to undertake deep sea fishing ventures it was pointed out that efforts must be made to enable the traditional fishermen to increase production.

The Association had also quoted from a report of the Indian Institute of Management, Ahmedabad, in which it was stated that 70% of the total marine landings were from the efforts of indigenous country crafts. In spite of the contribution from this sector to the extent of Rs. 300 crores, even after 35 years of planning, the traditional fishermen continued to be an economically weaker section. The memorandum, quoting from the report from the Task Force, said that the fishermen's welfare programmes introduced so far had not reached even a fraction of the fishermen population. All the advantages had been accruing to big business houses who had so far not shown or contributed anything to the welfare of the fishermen.

It was pointed out that marine fishing entailed health hazards and risk of life. There took place several deaths of fishermen while fishing, particularly, during cyclones. It was pointed out that in the recent cyclone over the Gujarat coast, there were 14 deaths in just one fishermen family. 82% of the traditional fishing boats and 37% of mechanised fishing vessels had either been lost or destroyed beyond repair. Due to lack of power, the cold storage became nonfunctional.

It was pointed out by the Association that in spite of rich marine and inland fishery

resources, the fishermen remained a disorganised, uneducated and poverty-ridden lot. They were socially backward. The various schemes introduced by the state and central governments such as the Integrated Rural Development Programme and the Antyodaya had not benefited the fishermen. There was no security of life or income and there was hardly any recognition of these factors by the government. It was further pointed out that a number of fishermen's families had to live with a single meal per day and this situation had been further aggravated by the money lenders or merchants through continuous exploitation of fishermen.

In Madhya Pradesh, one hatchery farm at Salud with an extent of 10 ha. and another one at Demer with an extent of 25 ha. are under construction. The work is expected to be completed soon.

In Uttar Pradesh one hatchery farm of 10 ha. is proposed to be constructed at Gomtinagar. The tenders have been notified for this project.

The second farm is proposed to be set up at Soranpeti with an extent of 10 ha. The tender proposals have not yet received the approval of the World Bank, it is learnt. Both the farms are however expected to be completed by 1983-84.

Modern Hatcheries in the Offing

Modern hatcheries with attached farms under the World Bank project are coming up in the states of West Bengal, Orissa, Madhya Pradesh, Uttar Pradesh and Bihar. There have been delays in almost all the states in completing the work, the reason being that there have been difficulties in the fulfilment of certain conditions laid down. The main conditions stipulated by the centre were that there should be an assured water supply, preferably ground water. There has to be proper drainage system. The hatchery should receive water supply through gravitation, free from silt. The soil condition of the pond should be such that there would be no seepage. Fulfilling all these conditions, the concerned implementing agencies have to furnish a outline plan of the farm and the hatchery. After this is approved, tenders have to be floated. After the tenders are

finalised and the work awarded, the Ministry of Agriculture will be able to recommend to NABARD the release of the loan out of the World Bank funds.

In West Bengal, hatcheries are under construction, one at Manikpara with an extent of 10 ha. and another at Jamuna Dighi with an extent of 25 ha. The outlay on each of the hatcheries is about Rs. 50 lakhs. The construction is expected to be completed soon.

In Orissa, the Fish Seed Development Corporation has proposals for the construction of one 10 ha. hatchery farm at Chiplima near Burla. The processing has not however reached the tendering stage. Another farm is proposed to be set up at Binika with an extent of 25 ha. Tender formalities have almost been completed in the case of this farm.

In the case of Bihar, the proposal is to set up three hatchery farms Bhusaula (10 ha), Gaura (8 ha.) and Raghapur (10 ha.). There has been considerable delay in the implementation of the project as the selected land areas could not yet be acquired. Tender notices have not yet been issued.

In the Sixth Five-Year Plan, it is proposed to set up the following number of hatchery farms with the extents noted against each.

State	No. of Hatchery Farms	Extent (Ha.)
Bihar	6	90
Madhya Pradesh	4	70
Orissa	4	70
Uttar Pradesh	4	55
West Bengal	9	150

The number of hatchery farms to be set up can be varied, but the total area is important. There can be any number of hatchery farms, but each farm should have a minimum extent of 8 ha. The hatchery farms set up in each of the states are given a target of seed production of the order of 416 million.



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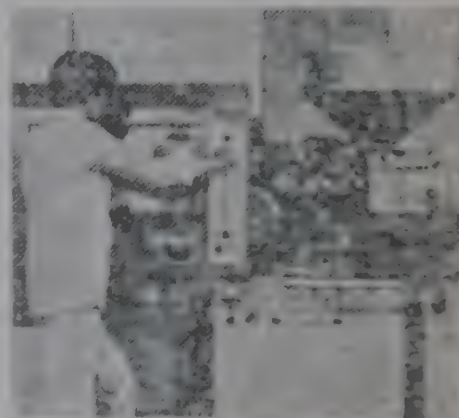
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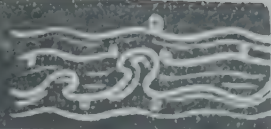
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FOREIGN FISHING COMPANIES TO FISH IN INDIAN WATERS

Under the notification issued by the Government of India on 26th August 1982, foreign fishing companies can obtain permission to fish in Indian waters. In pursuance of this provision, it is understood that the Government of India has given approvals to four Indian fishing companies authorising them to nominate suitable foreign fishing companies to exploit the fisheries resources in the Indian Maritime Zone. While three of these are in the private sector, one is in the public sector i.e. Orissa Maritime and Chilka Development Corporation.

* * *

MPEDA'S PARTICIPATION IN INDIAN TRADE EXHIBITION IN KUWAIT

It is understood that MPEDA took part in the Indian Trade Exhibition held in Kuwait from 10 to 19 January 1983. This exhibition was organised by Trade Fair Authority of India.

* * *

JAPANESE TEAM TO VISIT INDIA

A team of Japanese Importers of Indian marine products is likely to visit India soon. The team will be sponsored by the Japanese External Trade Organisation and will also include members from the Japanese fishing industry interested in setting up joint ventures in India.

* * *

ASSISTANCE FOR CYCLONE SHELTERS ON INDIAN COASTLINE FROM EEC

A grant of nearly U.S. \$ 4 million for the setting up of several

cyclone shelters all along the coastline of India will be provided by the EEC. It is envisaged that 200 shelters will be provided along the coastline of Andhra Pradesh under the programme in addition to the 30 shelters in Tamilnadu.

* * *

TRAINING COURSE ON QUALITY CONTROL

It is understood that arrangements have been made by the Marine Products Export Development Authority in association with the Central Institute of Fisheries Technology to conduct a number of training classes on quality control from 8 Feb. 1983. Each of these programmes will be conducted for a duration of 10 days, covering the quality control measures relating to sea food export industry, with particular accent on the standards laid down by the FDA, of U.S.A. The candidates for the courses will be drawn from various processing units and the exporters of marine products.

NATIONAL

SUBSIDY FOR AQUACULTURE IN KARNATAKA

A scheme to assist fish farmers to take up aquaculture has been announced by the Government of Karnataka recently. In terms of this scheme, the farmers will receive a subsidy of 25% on the capital cost on construction of fish ponds in brackishwater areas subject to a maximum of Rs. 10,000/-. The total water area of the pond should not however be lower than 0.4 ha.

BETTER DEAL TO FISHERMEN

The Prime Minister of India announced during her election tour in Andhra Pradesh, once at Srikakulam and Visakhapatnam districts in the last week of December 1982 and another time at Machilipatnam in Krishna district that a national relief fund would be created to help fishermen in times of natural calamities and disasters. The fund would be operated in consultations with the state governments, she said. The Prime Minister also said at Machilipatnam that there was a vast scope for the development of deep sea fishing in south Andhra coast which was famous for traditional fishing.

* * *

CIFE SECURES TRAINING VESSEL

A training vessel built at Goa shipyard, Goa, has been taken over by Mr. Rao Birendra Singh, Minister for Fisheries, at a function held at Goa on 22 December 1982. The vessel will be utilised by the Institute for providing training in marine fishing methods to the candidates undergoing training at the Institute.

* * *

FFDAs IN ANDHRA PRADESH

The Andhra Pradesh Fisheries Department has drawn up plans to set up fish farmers development agencies in the state sector in 5 or 6 districts in 1982-83. It is understood that this decision has been taken to give a fillip to fish farming in the private sector in the light of the experience gained and the good results achieved in some of the existing agencies in the state. It will be recalled that similar action to set up FFDAs was taken in the states of Tamilnadu, U.P. and Rajasthan.

J. KOVARI (ACQUACULTURE EXPERT) VISITS INDIA

Mr. J. Kovari, an Aquaculture Engineer with FAO whose services were obtained by Government of India from the Unilateral Trust Fund of RAO, was in India in Oct-Nov 1982, to study the progress in the implementation of hatchery farms under the World Bank Project in the states of West Bengal, Orissa, Madhya Pradesh, Uttar Pradesh and Bihar. He made a number of recommendations which were now under consideration of Government of India and the State governments concerned.

* * *

NABARD'S ASSISTANCE FOR THE DEVELOPMENT OF FISHERIES

The National Agricultural Bank for Rural Development is poised to extend financial assistance in a big way to competent entrepreneurs for the development of brackishwater farming, paddy-cum-fish culture, culture of air breathing fishes and fish-cum-duck farming. Those interested can obtain the details from the bank.

* * *

STRENGTHENING THE COAST GUARD FLEET

Vice Admiral M. R. Schunker, Director General, Coast Guard, said in Bombay that 8 more ships and helicopters would join the Coast Guard fleet in 1983. The Director General, who was in Bombay on an annual inspection at the Coast Guard's regional headquarters (West) witnessed on December 23, exercises by the Coast Guard ships in which 'Kuthar' and 'Kirpan' which are intersceptor boats and a helicopter, participated.

The fleet, commanded by commanders Jacob and Zutsi, demonstrated many intricate manoeuvres including interception of smugglers and poachers and

evacuation of casualties in the mid-sea.

* * *

TRAINING IN PRAWN CULTURE

Under the joint auspices of the MPEDA, Machilipatnam and the District Rural Development Authority, 36 fishermen underwent a training course in the collection and transportation of prawn seed. Mr. C. Lakshmana Rao, Regional Deputy Director of Fisheries, who presided over the validictory meeting at Thallapalam said that over 63,900 ha. of land could be used for developing prawn culture in Andhra Pradesh. He also said that the brackishwater area along the coastline of Krishna district was the best for the purpose.

Mr. B. Muralidhara Rao, Joint Director of Fisherism distributed the certificates to the trainees. Mr. Satya Prakash, Asst. Collector, was the Chief Guest. Mr. V. Balaramadas, Asst. Director of Fisheries, said that each trained fisherman would be given 1 ha. of low lying brackishwater area by the District Rural Development Authority.

* * *

POLLUTION OF GANGES

A study conducted by the scientists of the Central Inland Fisheries Research Institute, has revealed that a public sector fertiliser factory near Allahabad had been discharging harmful effluents into the Ganges. This had resulted in high fish mortality. The factory had been dumping its waste in such quantities that the river was polluted upto 15 kilo metres from its banks. The effluents included such metallic substances like arsenic, mercury, cadmium and non-metallic substances like petro-chemicals and pesticides.

Apart from the pollution caused by this discharge, thousands of

tons of sewerage pour into the Ganges daily. It is high time that the government considers the recommendations of the Central Board for prevention of water pollution to increase the flow from the Farakka during the rainy season as it would substantially help reducing pollution and salinity in the Ganges.

* * *

RECONSTITUTION OF BOARD OF STUDIES FOR INDUSTRIAL FISHERIES IN THE UNIVERSITY OF COCHIN

The University of Cochin has restructured the membership of the Board of Studies in Industrial Fisheries. This new Board would be in office till August 1986. The Board consists of 9 members, headed by Dr. C. T. Samuel, Professor and Head of the Department of the Industrial Fisheries. Among the other members are: a) Mr. S. N. Rao, Director, MPEDA, b) Mr. C. Cherian, President, Sea Food Exporters Assn of India, and c) Mr. V. D. Ramamurthy, Dy. Director, MPEDA.

The Board of studies has recommended that a 2-semester Post Graduate diploma course in Industrial Fisheries for the candidates sponsored by the fish processing industry may be conducted.

* * *

NEW PATTERN OF CENTRAL ASSISTANCE TO FFDA's

The Ministry of Agriculture has recently introduced a new central pattern for financing the 108 fish farmers development agencies set up so far in the country. Under this pattern, the salaries and other expenditure relating to the base staff has to be borne by the states. This is suggested to be done by converting the existing regular staff dealing with similar work in the district to come under the fold of fish farmers development

agency. In regard to the setting up of seed farms, the expenditure will be shared equally by the Centre and the State governments. Likewise expenditure on existing staff, jeep and trainees will be shared equally by the Centre and State. The pattern of assistance by the Centre as indicated above will be with reference to the performance. It is understood that Rs. 100 lakhs has so far been released in 1982-83 for the setting up of seed farms in fish farmers development agency areas in various states.

* * *

NEW CHARTER PERMISSIONS

It is understood that the Ministry of Agriculture has accorded or will soon be according permissions to six companies for chartering of fishing vessels. The companies permitted were 1) M/s International Fisheries Ltd. Bombay-2 pairs, 2) M/s Ellon Hinengo, Post Blair-2 trawlers, 3) M/s Akama Marines Ltd. Bhubaneswar-2 pairs, 4) M/s Shrimp India (P) Limited Calcutta-2 pairs, 5) M/s Four Season Fisheries (P) Ltd. Visakhapatnam-2 pairs and 6) M/s Srinivasa Sea Foods (P) Ltd. Visakhapatnam-2 pairs.

* * *

TRAINING PROGRAMME ON MARINE RESOURCES MANAGEMENT

A training programme on marine resources management and conservation in the Indian ocean basin and adjacent seas was held in Goa from 4 Oct to 10 Dec. 1982. Altogether there were 23 trainees, from India (13 nos.) Philippines (3 nos.), Vietnam (2 nos.), Sri Lanka, Iraq, Iran, Thailand and Sudan (1 no. each). The programme covered the Convention on the Law of the sea, Rules of the International Sea-bed Authority, Regional Seas Programme, Management of living aquatic resources, Environment and

development, Management of non-living resources, Navigation and Shipping in the Indian ocean and adjacent seas, Marine scientific research, planning and policy etc. The trainees were taken on field trips to Bangalore, Cochin, Trivandrum within the country and also to Maldives and to Sri Lanka. Number of Indian and on all the above aspects during the programme. Group discussions were also held.

* * *

STC CREDIT SCHEME

It is understood that the State Trading Corporation has formulated a new scheme aimed at providing short term financial assistance to exporters of marine products, particularly frozen shrimps. This scheme is likely to be taken up in the eastern region in the first instance.

Under this scheme, exporters of marine products can apply to the STC for short term financial assistance with reference to an export order received or expected. Such companies will however have to enroll themselves as associates of STC. Such companies will be eligible to receive advances from STC to the extent of 8% of the total value of the export order. The advance given will be liable to the payment of interest at rates applicable for loans from commercial banks. In addition, the STC would also levy service charges. The exports will be in the name of the STC. A Letter of Credit has to be opened in favour of the STC and the goods are to be hypothecated to the Corporation.

It is stated that around 4 companies will avail of the benefits under the scheme immediately. It is expected that more companies will come under the fold of the scheme in due course.

AIFI SEEKS CONCESSIONS

It is understood that the Association of Indian Fishery Industries submitted a memorandum to the government seeking certain reliefs and concessions that are necessary for the promotion of deep sea fishing industry. The Association proposed that all concessions applicable to other centres may be made applicable to the deep sea fishing industry also. These are: a) supply of duty-free diesel oil for fishing vessels engaged in catching fish for exports; b) exploitation of marine resources may be declared as an activity in a backward area; c) the concession of allowing profits free of tax for 5 years in Kandla zone may be made applicable to deep sea fishing industry; d) all R & D concessions may be made applicable to the fishing industry, considering that all present fishing efforts are of an R & D nature; and e) deep sea fishing industry may be excluded from the purview of M.R.T.P. Act as in the case of sectors such as cement, fertilisers etc.

* * *

EMERGING SCOPE FOR EXPORTS OF MARINE PRODUCTS TO EUROPE

A team sponsored by MPEDA which visited European countries recently seemed to have come to the conclusion that Europe was ripe for exporting a large variety of marine products from India. At present, Malaysia, Pakistan, Bangladesh etc. have been supplying marine products to European countries.

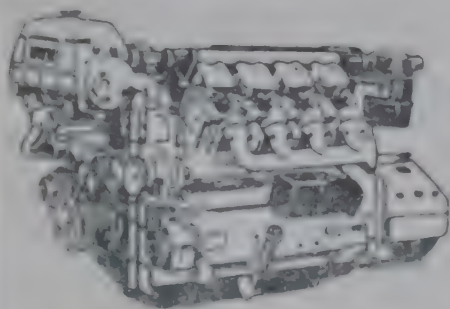
The exports to Japan from India have developed because of convenience afforded by the Japanese importers by way of their representations in India and the ready placement of orders. While Europe offers a lower price than Japan, the market is still

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attractive to be tapped. It has to be noted here that the consumption of shrimp in Europe is only a habit formed in the past 20 years.

Unlike in the past, shrimp now forms part of Christmas fare in European houses. Belgium, Holland, U.K., France, Spain, Italy and Greece and a few other countries are receptive to Indian imports of marine products. However, interest in Germany and Sweden is far less than the other countries.

Spain is interested in deep sea lobster, shrimp, cuttle fish and squid. This country is specially interested in joint ventures as the Spanish vessels fishing in waters of other countries would have the advantage of 16% tariff concession. In Spain there are separate associations for various items of marine products such as tuna and cuttle fish. There is a combined association of all the individual associations. Quotas of fish to be caught are fixed by the association. It is expected that the Association's delegation will be visiting India for a duration of 10-14 days covering major centres like Bombay, Madras, Cochin, Visakhapatnam, Lakshadweep and Delhi. The sponsoring of the delegation will be at government level, but the delegates may be chosen by the association. Italian and Greek fishing industries are also interested in sending delegations to India.

It is stated that shrimp catches by Spanish vessels in south American and African waters are of the order of 2-6 tonnes per day caught at a depth of 200-500 m. 10 m. long stern trawlers are used for the purpose.

An impression gained by the delegation seems to be that the overall image of the Indian exporter is poor in European countries. The reasons for this seems to be delayed consignments,

wrong counts and poor quality. The complaints from U.K. and Germany are state to be the loudest.

The requirements of the various countries differ. Spain is interested in head-on shrimp. Germany requires peeled shrimp and they prefer consumer packs. Cultured shrimp is not acceptable in Spain and other European countries.

* * *

FAO/DANIDA PROJECT IN M.P.

The Madhya Pradesh Fisheries Department has submitted an integrated project for the development of pond and reservoir fisheries linked with marketing. Housing and other amenities to fishermen are also part of the project. An FAO/DANIDA appraisal mission visited M.P. in April/May 1982. They found the project feasible and another mission is expected to visit M.P. for finalisation in Feb. 1983. The proposed outlay on the project is 95 million U.S. dollars. 14 districts in the state are proposed to be covered under the project. It is envisaged that the reservoir fisheries development will be entrusted to fishermen cooperatives. Development of fisheries in tanks and ponds will be handled through fish farmers development agencies. An ingredient of the project is that fish seed supply will be fully assured for stocking various tanks, ponds and reservoirs.

* * *

EXCELLENT RESPONSE FOR FIFTH INDIAN SEA FOOD TRADE FAIR

Requests in hundreds began flowing into the office of Marine Products Export Development Authority, Cochin for information and registration for ensuing Fifth Indian Sea Food Trade Fair to be held at Taj Coromandel Hotel, Madras during February 11 to 13, 1983.

For the first time in the trade fair history, countries from West

Asia will be represented by its leading fish trade businessmen. The Japan Marine Products Imports' Association intends to send a very big team to represent their organisation. Leading buyers from United States and European countries have confirmed their representation.

There has been a considerable rush for stalls by the Indian sea food exporters and other allied industries. The concerned officials are expected to sit together with them and discuss the presentation of their products during the exhibition.

The participants would be given a complimentary double room for four persons each. The Trade Fair will include an exhibition, business sessions and cultural programmes, sea food banquets and cocktails programmed for the participants.

* * *

FISH FILLETING TRAINING COURSE ENDS

Candidates sponsored by eight government organisations and 23 commercial units from Tamilnadu, Kerala, Karnataka and Orissa have finished their training in fish filleting — a month long course organised jointly by the Marine Products Export Development Authority and Integrated Fisheries Project, Cochin.

All the thirty one trainees were given training during the programme which was assisted by two experts from Britain.

On the completion of the training programmes a colourful function was organised.

Mr. C. Cherian, President of Sea Food Exporters' Association, while delivering the certificates to the candidates said that out of 35 items of marine products exported from

India, shrimp alone accounted for a share of 90%. Remaining 34 items having an overwhelming share of 95% in our fish landings, contributed only 10% to our exports, Mr. Cherian said, lack of adequate technical knowledge in making use of these remaining products gave the motivation to look for different avenues. Fish filleting offered best possible solution in making use of the heavy fish landings, and fish filleting could bring in a faster pace in diversifying the fish products, he said.

Pointing out that joint venture programmes and deep sea fishing charters that are being liberalised by the Government of India would lead to great scope for fish filleting in India, Mr. Cherian said that with the intensified diversification India could reach an export level of 3,200 million rupees during this year. Last year it was Rs. 2,800 million. As for the fish other than shrimp, Mr. Cherian said that there was scope for pushing the exports to Rs. 1000 million worth during this year.

Mr. R. Sathirajan presided over the function, Mr. V. Ramalingam, Joint Director, MPEDA welcomed the gathering. Mr. Taposh Dutta, Deputy Director, MPEDA proposed a vote of thanks. Mr. J.F. Rogers, one of the two technical experts who helped in the training programme expressed that the trainees could bring in good results out of their training.

CMFRI ACQUIRES RESEARCH VESSEL

The Central Marine Fisheries Research Institute (CMFRI), Cochin has added a research vessel to its fleet. This vessel, 32.5 m. long will be utilised to study the marine fishery resources of Indian seas. The vessel, named 'R.V. SKIPJACK' was built by the Garden Reach Shipbuilders

and Engineers Limited, Calcutta, at a cost of Rs. 173 lakhs.

Dr. Silas, Director of CMFRI said that with the declaration of the Exclusive Economic Zone, the realistic assessment of living resources in the zone had acquired added importance. Only with a proper assessment of resources it would be possible to plan effective utilisation of fishery wealth. He said that the areas will be covered for the assessment on priority basis.

NEW DETERGENT FOR KEEPING THE FLOORS OF FISH PROCESSING PLANTS CLEAN

A new detergent under the trade name 'Teenol' has been introduced into the market by M/s Joba Agencies, XL-2063, Kaloore, Cochin-17. This product is found to be useful for keeping the floors of fish processing plants clean and this has been tested by the Central Institute of Fisheries Technology.

RAJ KIRAN JOINS INDIAN COAST GUARD

A 6 crore rupees worth sea-ward defence boat 'Raj Kiran' has been commissioned for use by the Indian Coast Guard on December, 3 1982 at Garden Reach by Mrs. Mina Choudhury, wife of Rear Admiral B.R. Choudhury, AVSM, Admiral Superintendent, Naval Dockyard, Visakhapatnam.

'Raj Kiran' will be the eighth vessel of the sea-ward defence boat series being built by the Garden Reach Ship Builders and Engineers.

The 37.50 m vessel is completely built with steel and aluminium. The whole boat is air conditioned and fitted with sophisticated communication equipment.

Mr. A.K. Sarkar, Chairman and Managing Director, GRSE while welcoming the guests said that

though ship building capacity in India was far below the requirements, good progress was being made in the direction of assembly and usage of material in larger proportions acquired indigenously.

From 1983 onwards, the GRSE will build three more vessels for the Indian Coast Guard.

MARINE MAIL

Mr. Satish Bhasker, a Marine turtle surveyor of World Wild Life Fund on Suhali island of Lakshadweep found a unique method to send messages to his wife living in Madras.

Living alone on the island, Mr. Satish Kumar began sending his reports and messages through sealed bottles. He threw them into the sea to catch some lucky current so that the bottle could be retrieved by some Samaritan fishermen.

The fishermen, Anthony Amacious was one such fisherman. He found the bottle of Satish Kumar floating in the water with a message in it for his wife living in Madras.

When the incident was brought to the notice of the civilisation on the shore, the attempt of Satish Kumar was taken light heartedly. The message for the wife of Satish says that he was doing well alone on the island of Suheli and his job of tagging the nesting turtles was going on without disturbance.

Mr. Satish Kumar has been living on the island for the last four months through heavy monsoon season.

FRANCE TO ASSIST INDIAN TUNA PROCESSING INDUSTRY

As a result of understanding during the meeting of Indo-French Committee on Economic and Technical Cooperation held at New Delhi during the month of

October, 1982 France is likely to help India in setting up of tuna processing industry and fishing fleet suitable for the purpose. India has proposals to buy two tuna seiner vessels from France.

The government of France is now formulating a draft Memorandum of Understanding between India and France concerning deep sea fishing and aquaculture. The cooperation from the French side will be represented by French Consortium Conference.

* * *

MUSSEL SHELL LIME

The Central Institute of Fisheries Technology has evolved an easy method to convert mussel shells into lime. The mussel shells after the removal of flesh are thrown away as waste. The deriving of lime from the shells may give fillip to utilising the thrown away shells on commercial basis.

The shells are first washed free of foreign bodies and placed in traditional furnaces over a bed of powdered charcoal.

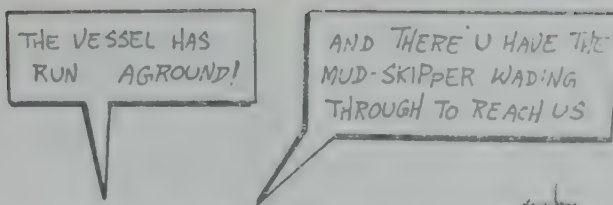
The shells so burned would turn into fine lime which could be used in plastering and white washing. The production cost estimated by the Institute is Rs. 400 per ton and this cost could be reduced further if the production level is on higher scale.

* * *

REPORT FOR SALE

The report of the Four member Delegation of Indian Marine products which visited USA during the month of April this year is now available from the Marine Products Export Development Authority, Cochin and in all its regional offices.

The report gives an extensive market survey on the marine



products in USA and is most useful for those who intend to sell their products in that country.

The report in book form is available Rs. 9.00 per copy exclusive of postage charges. A copy costs Rs. 11.35 by registered post. Money can be remitted through money order, demand draft or crossed Indian postal order in favour of MPEDA, Cochin 16

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INDIAN POMFRETS FLY TO SINGAPORE

A consignment of chilled pomfrets has been air lifted for the market in Singapore from Madras. The consignment of 500 kg. of silver and chinese varieties was exported by M/s. Vaval Sea Foods, Madras.

This is for the first time that pomfrets are air lifted to Singapore from Madras.

* * *

P.G. COURSE IN FISHERIES

A course in Master of Fisheries Science will commence from this academic year in Fisheries College, Tuticorin.

This is second institution in the country to start such a course. The

first one being the college of fisheries, Mangalore.

The proposed course will start with fisheries science at first and then will extend the subjects to Fishery biology, fish culture and fishery technology.

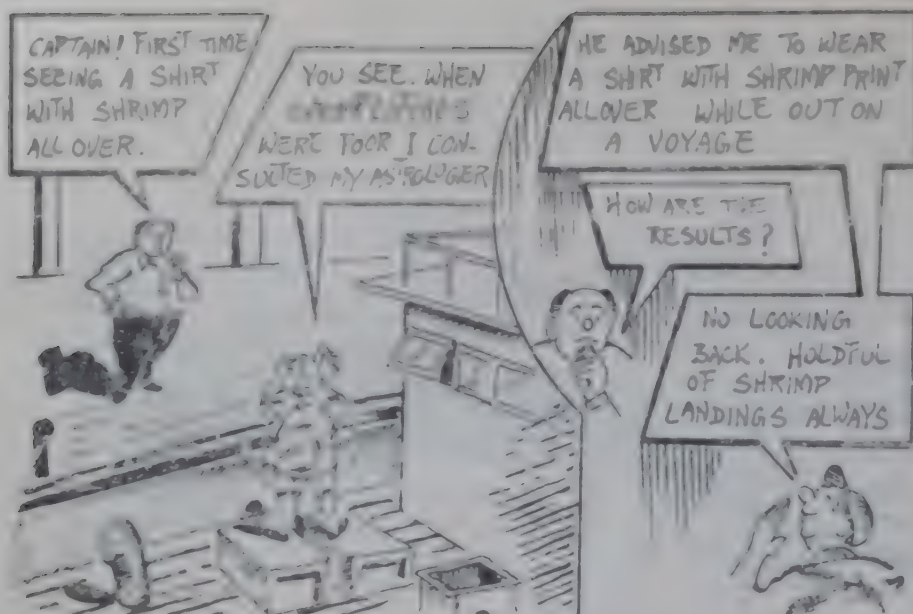
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A.P. GOVT. PROPOSES Rs. 17 CRORE FISHING HARBOUR AT KRISHNAPATNAM

The government of Andhra Pradesh has proposed to construct a fishing harbour at a cost of Rs. 17 crores at Krishnapatnam Nellore district. The project report has already been submitted to the Union Government for approval. This will be followed by assistance from United Kingdom's Overseas Development Ministry.

According to Mr. H.K. Babu, Director of Fisheries a four men team of United Kingdom has visited the area during 1978 to carry out a feasibility study. They later recommended the project. It is proposed to construct freezing plants, ice plants and cold storages and lay 100 km of roads in the harbour area, and connecting the surrounding marine villages.

The cost in the beginning was estimated at Rs. 11 crores but later it was increased to Rs. 17 crores.



ZAMINDARS HIDE BEHIND LAW & EXPLOIT POOR FISHERMEN

A stretch of eighty kilometers on the river Ganges from Sultan Gunj to Pirapainty is being exploited by two 'zamindars' namely Mahasay Amarnath Ghosh of Champannagar in Bhagalpur district of Bihar and Musharaff Hussain Praamanik of Mushidabad in West Bengal.

Though zamindari system was abolished way back in 1954 these two 'zamindars' still exploit the eighty km stretch of Ganges by selling the fishing rights to the fishermen at exorbitant rates.

About 13,000 fishermen have been subjected to harassment for the last 28 years, according to reports. A case filed by the state government in the Patna High Court could not be decided since river water did not fit into the clause on immovable land property. Taking advantage of the litigation the two zamindars continued their business untouched by any law. However, after a lapse of several years the state government again took the case to the Supreme Court. It was claimed by the zamindars that they have hereditary right over the waters and those waters are in the name of trustees of dieties. The matter is

still undecided by even the Supreme Court while thousands of poor fishermen suffer under the harassment of the zamindars.

* * *

ANDHRA BOATMEN PLEAD FOR FAIRPLAY

A memorandum submitted by the Mechanised Fishing Boat Operators Association, Kakinada to the ministers of fisheries of both Andhra Pradesh and Orissa reveals several factors that are culminating into inter-state tensions in the field of sea fishing.

First thing is that the boatmen of Orissa do not like others to exploit their waters. They prevent them by warnings, threatenings and sometimes as reported by the others, 'fined'. The area off Paradeep and Astarang abound in prawn of good quality. Orissa state has not enough force to exploit the whole stock. The duration of prawn life is short. When they grow to a certain stage they drift down to the deeps. So they should be caught before they do so.

And Orissa boats are not enough in numbers to do it. And yet they prevent others to do so, particularly those from Andhra state. And while

the boat operators of Orissa prevent Andhra fishermen from fishing in their area, prawn procurers of Astarang invite the Andhra Boat men to fish in that area so that their procurement of prawn could be regular and enough for making their business run smooth. Orissa boats alone are not in a position to land enough quantity.

The prawn season in Andhra runs from January to October every year while in Orissa it extends from October to January, according to the Mechanised Fishing Boat Operators Association.

During the past years there were no troubles at all. The trouble started only during late seventies, when the Andhra Boat men were time and again asked to stop their operations off Orissa state. The 'regional feeling' and 'selfish motive' are prevalent among the Orissa boatmen, according to the memorandum.

It was alleged in the memorandum that, Andhra Boats required by prawn procurers in Orissa had to return to their bases in Andhra due to disturbances created by 'some miscreants' as well as 'Orissa Boat Owners'. It was reported that the drivers and lascars of Andhra boats were 'scolded', 'warned' and were 'awarded punishments'.

The memorandum says that while the fishing boats from Orissa and Tamilnadu enjoy their operations in Andhra waters without any trouble, it was unfair on the part of others to treat Andhra men harshly.

The memorandum claims that every Indian citizen has a right to carry out fishing operations in Indian coastal waters. It pleads that there should not be any regional feeling. If it is allowed to grow, the memorandum says that it would lead

to 'sickness' of fishing industry on which thousands of poor fishermen are dependent.

Therefore, the memorandum demanded that certain measures should be taken by the decision makers such as instructing that every boat owner has a right to fish in Indian waters irrespective of the state to which he belonged.

The concerned state governments should also institute measures to arrest the miscreants, who create the regional feeling and 'start violence in case other state's boats carry out fishing operations in the neighbouring state'.

If this is not done, the memorandum says that it would be difficult for boats of other states to operate in the waters of Andhra and they would not be responsible for the consequences.

Meanwhile, the boatmen from Andhra still receive threatening letters from the Orissa boat owners.

* * *

NEW CHARTER CASES

It is understood that a meeting of the Inter-ministerial Committee to screen and recommend applications for chartering of fishing vessels met on 28 December 1982 in New Delhi. The committee seems too have recommended, among others, applications from Leo fisheries, G.P. marine exports, VBC exports, for chartering of 2 pairs of bull trawlers each, from Karnataka fisheries development corporation for chartering two tuna purse-seiners from Philippines, and from Orissa maritime and Chilka development authority for chartering squid jiggers.

* * *

DETECTION OF FISH SHOALS THROUGH SATALLITES

The president of the Indian Science Congress, Prof.

B. Ramachandra Rao, predicted at the Indian Science Congress meet on January 3, 1983 at Tirupathi that it might be possible to use satellites for locating fish concentrations. Sea researches carried out by Oceanographic institutions, he said, had revealed that a variety of sounds could be beamed during fish catching operations. For instance, the sounds which frighten fish, especially of predators could drive whole shoals of fish towards fishing craft.

Addressing the Science Congress session, he said that while developing the scientific methods and tools for fish harvesting, the parameter of cost-benefit analysis should be considered. The sound produced by each species in the ocean, if scientifically understood and perfected, could perhaps become a major variable in the process of identification of the fish zones, he said.

Marine laboratory experiments had shown that almost 90 per cent of marine fish produced detectable sounds in many ways which could be deciphered.

Mentioning that ocean is a storehouse of food and mineral resources. Mrs. Gandhi said at the meeting that the Department of Ocean Development will provide the focal point for co-ordinated progress, guided by India's ocean policy statement.

* * *

NEW CHAIRMAN AND MANAGING DIRECTOR FOR A.P.F.C.

Mr. M.J. Apparao, who is closely associated with M/s Puri Marines, has been appointed by the Government of Andhra Pradesh as the Chairman of the A.P. Fisheries Corporation. This post has been lying vacant for more than a year.

The State Government has also appointed Mr. M.V. Thomas, who is in the rank of Addl. Director-General of Police, as the Managing Director of the Corporation.

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RAO BIRENDRA SINGH VISITS NORTH ANDHRA COASTAL CENTRES

Mr. Rao Birendra Singh, Minister for Agriculture, visited places such as Visakhapatnam, Srikakulam, Vizianagaram, Tuni and Kakinada in A.P. and touched upon assistance to fishermen by the government, at various public meetings. He made reference to the announcement of the Prime Minister for the setting up of national fishermen's welfare fund.

* * *

Mr. STEPHEN VISITS VISAKHAPATNAM FISHING HARBOUR

Mr. C.M. Stephen, Minister for Shipping and Transport, visited Visakhapatnam fishing harbour recently. He was shown round one of the trawlers of M/s Suraj Fisheries (P) Limited and various details about the vessels were explained to him. Mr. Stephen evinced keen interest in the operational aspects of the trawlers from this port.

* * *

M/s BIO FREEZERS EXPORTS (P) LIMITED

It is understood that negotiations are stated to be in progress for the transfer of the majority shareholding in the company, Bio - freezers Exports (P) Limited, to M/s George Maijo & Co. The reason for the sale seems to be that the Managing Director of the company ran into considerable financial strain which led to the present situation.

INTERNATIONAL

BAHRAIN'S BOAT BUILDING EPIC

Since ancient times, Bahrainis built boats- even before the usage of a nail. They stitched their boats with needles and cord which were able to withstand the local gales and high seas.

Of late, there has been a demand for these type of boats. Only the difference is that they would be fitted with motor engines and few are being tried with sails. These 'jalibuts' have vertical bow and a straight keel. The boats which were used for pearl hunting were called 'sambuq'. They had curved bow and square stern. Other popular boats in ancient times were 'shu'al' and 'baghala'.

The study of such boats of ancient times could help in modern designs and modifications in relations to the needs and requirements of that particular Area.

* * *

CICHLID MAKES MALAWI UNIQUE AMONG LAKES

Lake Malawi contains over 300 species of fish, more than any lake in the world. Besides, there are some species that could never be found in other lakes in the world.

Species like Cichlid make Lake Malawi unique among the lakes of the world. The Cichlid is the most sought after aquarium fish in the world.

The formation of Lake Malawi National Park is mainly due to the attraction of fish lovers all over the world. The Lake Malawi

National Park covers 87 sq. km. of land and water. It has rocky shorelines and sandy beaches. The purpose in giving a National Park status to Lake Malawi is mainly due to the presence of Cichlids and the government of Malawi intends to protect the fish from mismanagement and consequential depletion. Malawis love cichlids for the reason that with that fish even other species find good market in the booming aquarium fish business in Malawi.

Alongside conservation of Cichlids and the rare red fish which is locally called as 'mbuna', the Lake Malawi National Park is poised to become one of the most attractive tourist centres in the Dark Continent.

* * *

SATELLITE TO TRACK FISH

The migratory fish could now be studied with far greater ease and accuracy with the help of satellite tracking system developed by the scientists at Aberdeen University of Scotland.

For the first time in the history of fish technology the satellite is being used by the scientists to locate the migrating fish anywhere on the earth. This has opened new possibilities for organised fishing by the nations.

As an experiment, the scientists attached a radio package to a basking shark. The package has an antenna too. From the sky the satellite would be able to receive the signals from the shark and relay it to the base at Aberdeen university.

This technique was first revealed at the annual conference of the British Association of Advancement of Science at Liverpool recently by Dr. Monty Priede from the University's Zoology Department. According to Dr. Monty this satellite system can help a lot in the stock management in the oceans.

* * *

PAPER FROM SHELL FISH

The scientists at the Shikoku Institute of the Industrial Science and Technology Agency in Japan have developed a technique to make paper out of the carapaces of crustaceans.

Chitin, which is similar to cellulose, is extracted, cooled to 20°C, and dissolved in a mixture of water and formic acid. The substance so formed can be spun into thin yarn and made into paper.

* * *

'HAPPY' MEN HAPPY AGAIN

Two New Zealand trawlers, Happy 1 and Happy 2 were seized while fishing in the closed waters by patrol boats.

The owner, Mr. Happy Yovich had to pay a penalty of 10,000 dollars to get his boats released and be happy again. His crew were also happy because their boss could give them a chance to continue in the Company which operates a sizable fleet in the Northern New Zealand.

* * *

THEY BURIED HATCHET TO MEAN IT

A hatchet embedded in a polished piece of wood was kept in the office of the Western Abalone Processors Pty Ltd. Australia. While opening the office formally Mr. John Oslen, Minister of

Fisheries said that that was what the fishing industry of Australia needed these days.

The processing plant was shared by 12 divers who were hitherto found it strenuous to market their products. The processing plant provided them with some security to their career.

Norman Craig, Managing Director of the Western Abalone Processors Pty Ltd, said that their products would be marketed under brand name 'SEA'.

There were several differences before establishing the processing plant between the divers and the others in the industry which were resolved among themselves. Hence a buried hatchet symbolises the smooth functioning of the marketing system in Australia.

* * *

WAR OF WHALES IN THE OFFING?

It is the dispute between 'protectors' and 'Predators'. It is the question of endangered species and a traditional industry. If the industry continues, the endangered species would vanish. That's what the protectors say. If the endangered species were to be protected an industry supporting about 15,000 people would come to an end, that's what the predators' say. In this case the endangered species is the whale, whose living number is estimated at 2.5 million Nos. The industry is the Japanese whaling industry which thrives in many ways by hunting whales. Japanese have a quota to hunt whales in the North Pacific. Only 900 a year!! Yet their industry is surviving. Japanese give a traditional tint to their whaling business. They have been doing it for centuries, they say.

The 'protectors', World Foundation for the Protection of

Nature have passed the moratorium on the ban of hunting whales with effect from 1986. The President of the Foundation, Prince Philip (Duke of Edinburgh) has tried at diplomacy in Tokyo after the Commission has voted for the ban. He said that if the ban was to be imposed only a few would complain, which means the Japanese and to some extent Russians. The United States of America supported the ban with full vigour. 'They go all out to do it', they say. When the British and USA come on one side on the issue, Japan, the genuine sufferer from the ban joined hands with USSR. The parties in dispute are clear. Now the issue would begin on a new phase: How to implement the ban effectively on one side by the UK and USA and on how to oppose it by all means by Japan and Russia on the other side.

Japan defends itself from the morality angle saying that most costly research work has been done to give most painless death to whales. Besides, the Japanese fishermen offer prayers for the departed souls of the whales after killing them, they say. But the USA has retorted about the 'traditionality' in killing whales by the Japanese. They are point blank in their approach to stop the killing of whales from the ecological point of view. Proposals have already been made clear to the violators of the ban that they would be denied of fishing zones in the territorial waters of USA and those countries who support the ban. Meanwhile heat is building up in the industrial lobby in Japan.

* * *

KOREA CROSSES MILLION-DOLLAR MARINE PRODUCT EXPORTS

South Korea achieved an impressive performance in the

export in marine products in 1981. The exports during the year amounted to US \$ 1051 million. The Government of Korea set a target of US \$ 1074 million for exports in 1982.

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TUNA INDUSTRY IN PHILIPPINES

The landings of tuna in Philippines in 1980 and 1981 were of the order of 79,500 tonnes. However, the landings in 1982 are reported to have fallen significantly. Philippines has a purse seine fleet of 85 vessels, a growth since 1975.

The reason for the fall in the landings are attributed seasonal variations. As at present, the tuna canning factories in Philippines are facing a serious problem of shortage in raw material, owing to drop in tuna landings. It is stated that the larger fishing companies owning purse seiners are on the look out for gaining access to fishing grounds outside the EEZ of Philippines. Considering the situation, it is understood that the Philippine Government has announced that no more tuna fishing joint ventures for fishing in Philippine waters will be considered.

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MEXICAN TUNA INDUSTRY

In the past two years Mexico emerged as an important tuna fishing country. This upgradation has however created more of problems to the Mexican economy than relief. The present level of tuna catches by Mexican purse seiners and pole and line vessels is stated to be of the order of 70,000 tons. The catches would probably have been much more but for the total restriction on exports of Mexican tuna to USA, imposed by US government. Added to this, the fleet operators face the problem of heavy taxes for

unloading, storage and for canning facilities. The available facilities for canning and storage are also inadequate. While new port and other ancilliary facilities at various places are stated to be coming up at various points the expected addition of 40 new tuna vessels in 1982 may have the effect of aggravating the problems.

RESEARCH ON SWIMMING SPEED OF DOLPHIN

Soviet scientists have established that sensitive receptors of its skin enables the dolphin to achieve its swimming speed. These receptors are capable of taking the slightest changes of the resistants to water in various sections of the skin and the great mobility of the circulatory system. The scientists have also noted that all the layers of dolphin's skin interest with each other during the swimming. This

interaction brings about signals from nerve endings about the character of the stream of the automatic regulations of the mechanical properties of the skin, and eventually to the hydro-dynamic resistants.

DROP IN US SHRIMP LANDINGS

During the period January-October 1981 the shrimp landings in U.S.A. were of the order of 50,000 tonnes. During the same period in 1982, the landings were only of the order of 35,000 tonnes. This represented a reduction of about 30% in the landings. It may also be mentioned here that during the period January to September 1982, there had been an 8% increase in shrimp imports into U.S.A. from 54,291 tonnes to 58,687 tonnes.

CAVE FISH

The scientists of Zoology Institute of Soviet Academy of Sciences have discovered cave fish in the caverns of Kugitantau ridge in central Asia. These fish have no eye sight.

These fish, according to the scientists, can swim better than the fish with eye sight. They were found to perform swimming in all possible directions—with head down, on sides and backwards. Such fish were first reported by Americans in 1842. There were several such discoveries in Africa, Australia and South America in recent decades.

These creatures were believed to be the early forms of fish.

SUN POWERED CANNING CENTRE

Barrancas, a small town in Mexico will soon have a solar power (Contd. on p. 60)

Indian waters abound in fish and Britannia has entered fishing as part of the national policy to organise a more scientific exploitation of resources in future. Catches are landed in seafresh condition and speedily processed to preserve the natural product quality.

The Britannia fleet of 6 trawlers includes two modern 23 metre steel vessels imported from Mexico. It is proposed to augment the fleet in a phased manner, and possibilities of entering the field of deep-sea fishing are being explored currently.

Supplementing these efforts at sea is a programme of developing brackishwater prawn culture and Britannia is among the pioneers investigating this area. The objective in both cases is to secure the freshest and best quality raw materials.

bff
Britannia
Frozen
Foods
A DIVISION OF
BRITANNIA
INDUSTRIES LIMITED

MAKER TOWER-E 19TH FLOOR,
CUFFE PARADE BOMBAY-400 005, INDIA
TELEPHONE: 216601 TELEGRAM: ONE UP
BOMBAY: TELEX: 11-6-169 BRIE-IN

Here is an estimation of what stars say about fortunes of fishery industrialists, managers and operators for February 1983.

ARIES (Mar. 21 to Apr. 20):

You will face a tough financial situation in the early part of the month. You have to depend on others to raise cash. You will however have to strengthen your mind to look at your problems clearly and take progressive action. Government officials will be cooperative. During the second fortnight things will be favourable for you and you will be glad that your positive approach has paid. In the last week there may be some confusion, but ultimately matters will resolve themselves. Take quick decisions on matters of importance. Fishing results will be to your satisfaction.

TAURUS (Apr. 21 to May 21):

You will have serious worries in the early part of the month. You may also face a hostile environment around you. Do not get cowed down by the situation as things will look up in the second fortnight. Career matters will improve and situations will develop in your favour. Good fishing can be anticipated in the second fortnight.

GEMINI (May 22 to June 21):

A good time for taking important steps. Cultivate friendship with influential people for realising your objectives. Those appearing for interviews may succeed. Unexpected opportunities may present themselves and make the best use of them. Second fortnight is a good period to improve your career prospects and personal

gains. Avoid self criticism. There may be some trouble towards the end of the month.

Study the source of your trouble and you will be able to get over them. Reasonable fishing results can be expected from 15-21.

CANCER (June 22 to July 23):

You may have to face certain problems in the early part of the month. If you plan your action carefully and hold prior discussions with your close friends, you will be able to get over them. You will attract lot of attention from your friends and will-wishers in the second week. Good prospects in your profession are possible in the second fortnight. There may be considerable expenditure during this period. There will be considerable strain in the last week. Good fishing can be expected from 8-14.

LEO (July 24 to Aug. 23):

Concentrate on your work in the first week beyond the normal level avoiding mistakes. You are likely to move forward in regard to any project on hand. Career prospects are high-lighted in the second week. Guard against the impulse to spend heavily. The second fortnight may create certain anxieties. However you are likely to make headway in any plan or project on which you are working and you may be able to secure financial backing also. There may be worries again coming up in the last week. There may be interesting fishing results in the first week.

VIRGO (Aug. 24 to Sept. 23):

Do not undertake any travel in the first week. There may be

health problems. Do not make uncalled-for comments. Things also do not work out to your satisfaction in the second week. However in the third week there will be encouraging signs. Act courageously to take advantage of them. You may secure financial support for a programme you have in mind towards the end of the month. Fishing results will be average.

LIBRA (Sept. 24 to Oct. 23):

Concentrate more on career matters and try to win the goodwill of your higher authorities. Extend help to those who seek the same from you. Be careful about money spending. Intensify your efforts at the professional front. Do not cross swords with your higher authorities. A person who is averse to you is likely to change his attitude towards you. You will be able to concentrate more on important subjects. You will receive a much awaited reply which will keep you joyful. Moderate fishing can be anticipated towards the end of the month.

SCORPIO (Oct. 24 to Nov. 22):

You will win the goodwill of your higher officers owing to your hard work. Learn the habit of being pleasant to others. You will be poised to take important decisions towards the middle of the month. There will be financial support forthcoming from an important person. Important friendships may also be formed. You will act energetically towards the close of the month. Good fishing results can be expected in the second fortnight.

SAGITTARIUS (Nov. 23 to Dec. 21):

There may be a set back in financial matters. Advice from experienced persons will be of great help to you. You will be disappointed at lack of progress

in work. Be calm and unruffled
all things change in your favour
in the second fortnight when
you will receive help and you will
be able to take useful decisions.
Be careful about associates who
are out to damage your interests.
Fishing results are not likely to be
to your satisfaction.

CAPRICORN (Dec. 23 to Jan. 20) :

Pressure of work will be very
heavy, although there will be some
good news in the early part of the
month. Help will be forthcoming
from friends. There will be visitors
who may be helpful in the long
run. There will be favourable
developments in the second
fortnight. Plan your spending
carefully during this period. Do not
believe any rumours and do not
get involved in the problems of
others. Good fishing can be
expected from 15-21.

AQUARIUS (Jan. 21 to Feb. 19) :

You have to work within your
limitations. There will be opportu-
nities to realise your ambitions
in the second week and you have
to make use of them through
determination and enthusiasm.
Avoid confusing thoughts. Do not
brood on your difficulties which
will pass off soon. Towards the end
of the month you are likely to
become restless. Think properly
and concentrate on one thing at
time. Good fishing results can be
expected towards the end of the
month.

PISCES (Feb. 20 to Mar. 20) :

If you have to enter into any
agreement do so in the first week.
There may be good possibilities
to improve your financial resources.
You may get disappointed at not
receiving professional advice. It is
desirable that you concentrate on
your routine work, waiting for a

good turn of events. Avenues may
open for furthering your profes-
sional affairs in the third week.
You may get some sudden news
that is favourable towards the
end of the month. The last week
may also prove to be very lucky
and you will receive appreciation
for your good work. There can be
upgradation in your professional
status. Good fishing can be
expected from 22-28.

News International (Contd. from p. 58)

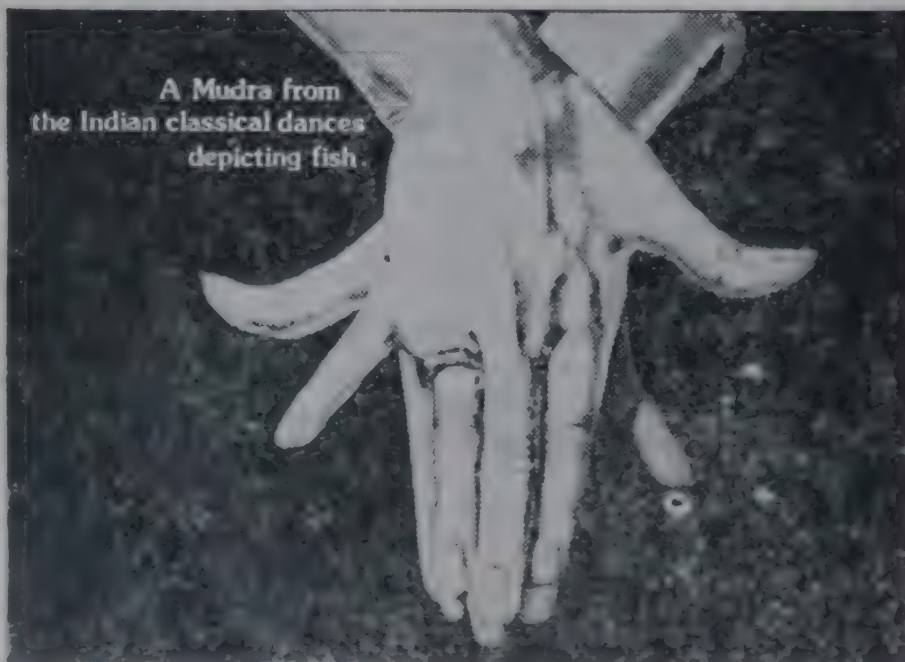
plant. Arrangements are afoot
to have solar-powered fish canning
plant and ice plant in the town.
Further, all the inhabitants of the
township will be benefitted
by the solar energy.

Answers to Quiz

1. a, 2. c, 3. c, 4. b, 5. b, 6. c, 7. a, 8. a,
9. b, 10. a, 11. b, 12. a, 13. c, 14. c,
15. b.

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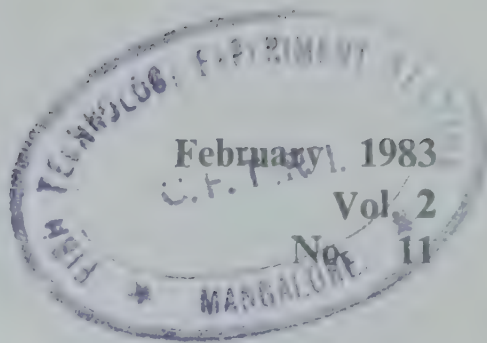
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Fishing Chimes



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Letters to the Editor

Dear Sir,

The article on massive fish seed production in pens in Tungabhadra reservoir in Oct. '82 issue of Fishing Chimes is very interesting. It appears that this technique can be introduced in other reservoirs in the country to increase fish seed production quickly and at low investments. It is worthwhile exploring the possibilities of entrusting the activity to groups of fishermen from the weaker sections of the society by equipping them with requisite training and also providing them with the equipment and necessary financial backing.

J. R. Chandra
Madras

* * *

Dear Sir,

At one time it was believed that shrimp was available upto 15 fathoms depth. Now white, tiger and brown shrimp in large quantities are netted at depths upto 60 fathoms. This shows that, contrary to the common belief white, tiger and brown shrimps occur in deeper zones as well. There should be a massive effort to check on this. If shrimp is available in deeper areas, new opportunities will unfold.

P. N. Rao
Visakhapatnam

Dear Sir,

Your comments entitled 'Execution' concerning the fate of the 1977 scheme for the import of fishing vessels are interesting. The development of the industry received a setback as import of a very small number of vessels materialised under the scheme. There is no doubt that both the government and the entrepreneurs are responsible for this. Parties not having adequate financial backing were in the field. Further, the problem of obtaining guarantees to be given to the SDFC seems to have come in the way. Under the new scheme announced recently, government should give permissions only to those who show adequate proof that these two conditions can be fulfilled. This will avoid complications later on,

J. V. Ramanagopal
Bombay

* * *

Dear Sir,

Now that jar hatcheries have been found to yield good results, all state governments should introduce schemes to assist private fish farmers to set up these hatcheries. This will not only modernise the operations, but will also increase the fish seed output as hatcheries yield a higher percentage of realisation.

U. Subbarao
Visakhapatnam

* * *

Dear Sir,

One way of stepping up indigenous construction of fishing vessels is for the government to encourage Indian shipyards to enter into technical collaboration

with foreign shipyards. While the foreign shipyards may be allowed a handsome commission on the total cost as part of the joint venture, they should agree to provide drawings and supervision, besides providing the requisite counter-guarantee from their bankers to the Indian parties to enable them to obtain an interim guarantee towards the amount of loan to be obtained by them from the SDFC.

V. Rajendraprasad
Hyderabad

* * *

Dear Editor,

Working in Nigeria, with one of the foremost and successful fishing company and associating myself for the past 1 year and 7 months with the Nigerian Fishing Industry in general, I have with much interest gone through the columns of your issue of December 1982. There is no doubt in my mind that 'Fishing Chimes' is growing from strength to strength in providing the Indian Fishing Industry and elsewhere, much informative news.

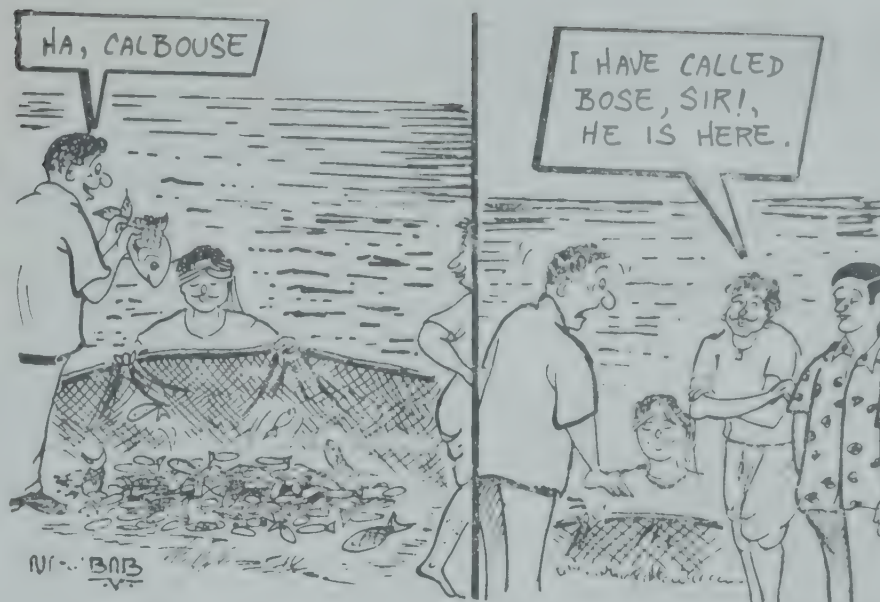
However, being one of the earliest Skippers to come to Nigeria and now conducting fishing fleet management functions, I take strong objection to the title 'Exodus of Indian Skippers to Nigeria' in your esteemed publication of December 1982.

It is indeed the demand in Nigeria for Indian Skippers and it may never be construed as an 'exodus'. I am in familiarity with most of the Fishing Companies in Nigeria and with the personnel at the helm of affairs conducting the functions. Hitherto, Companies employing British, Korean, Spanish and a few African

Skippers have started sending them back, and looking forward for more and more Indian. The reasons for this are quite understandable and clear. Compared to their European counterparts, Indian Skippers are technically sound, intelligent in catching, committed to their task, physically fit to the sea conditions prevailing in this tropical land, and last but not the least, are known for integrity which is necessary for Skippers.

I very much hope that the spirit amongst our Indian Skippers will remain the same that further scope opens for them in other continents of the globe, proclaiming them as the 'best fishermen.'

It is therefore emphasised once more, that it is the demand in Nigeria for Indian Skippers, but certainly not an exodus. In other words, it may be explained that the demand in Nigeria for



Indian Skippers had created an exodus.

Capt. Edward Yeeda
Lagos (Nigeria)

* * *

News International
DEVELOPMENT OF FISHERIES
IN ITALY

The Government of Italy has drawn up plans to promote

research in the field of fisheries, particularly aquaculture, and in regard to establishing a sound fishery cooperative structure. The Government has also plans on hand for the modernisation of the nation's fishing fleet. The expected outlay for these schemes is stated to be US \$ 50 million, to be utilised in a period of 3 years.

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Need to Revamp Fisheries Administration in the States

In the early post-independence period, the major role played by the provincial fisheries departments on the inland side, was to a) collect spawn/fry from rivers, grow them into fingerlings at fish farms, collect major carp fingerlings from river canal systems, and use the seed for stocking departmental ponds. Only in the north-eastern states, particularly West Bengal, there was the tradition of fish culture in private ponds. In other states there was no such tradition and fish culture in selected tanks and ponds, besides a few fish farms, was the exclusive domain of fisheries departments. In the marine sector, before the advent of mechanisation of boats, the main activity was one of organising the curing of fish at fish curing yards set up at selected centres. These yards were the focal points for marine fishery administration.

Several states did not have separate fisheries departments till recently. Fisheries administration continued to be with industries, agriculture or veterinary departments in several states for long. With the Rajasthan government conceding a separate department for fisheries recently, now all the states, perhaps with the exception of Tripura, have their own fisheries departments.

MOMENTOUS DEVELOPMENTS

We have seen several momentous developments in the fisheries field in the past two or three decades. On the inland side, the development

of technologies to induce major carps to breed to obtain maximum output of fry/fingerlings from spawn through operation of hatcheries and from dry bundhs, to obtain optimum fish yields from tanks and ponds through composite culture, to produce prawn fry and to undertake brackishwater farming, and of integrated farming practices, brought in a major transformation.

There has been an arousal of public interest in the economic potential of the activities and situations which could not be visualised in fifties have now materialised. Significant commercial activity in the private sector in fish seed production and fish farming, aided by fish farmers development agencies, has come into being.

In the marine sector, the introduction of synthetic twine for net making on the one hand and mechanised boats on the other brought about a major seachange. The opening up of the export sector, particularly for shrimp, gave a major fillip to sea fishing activities. A large number of private sector units in fishing and processing of marine products have come up. A beginning has been made in the introduction of larger fishing vessels for the exploitation of deeper sea zones. The activity is gaining momentum, consequent to the declaration of the exclusive economic zone.

State Fisheries Corporations in the public sector, designed to

concentrate on the commercial aspects of the activity, have come into being. Fisheries education and training centres have been established. Research and extension support is now being provided by Central Institutes in marine and inland fisheries fields besides support in fisheries technology. Exploration of marine fishing grounds is being done in an intensive manner by exploratory fisheries project.

LITTLE CHANGE IN THE SET

While major developments as outlined above have taken place, the pattern of the administrative set-up in the states has changed very little. While there has been the formation of separate directorates for fisheries in such of the states where fisheries were being administered by other departments till recently, and an expansion in the number of posts in all the departments took place, the pattern of functioning has seen very little change. It is now high time for the state governments to redefine the objectives and functions of the fishery departments.

NEW PRESSURES

The traditional pattern of work of the fisheries departments is to take care of the departmental units. The onset of commercial activities both in the public and private sector has put new pressures on the departments. These can no longer be borne without making changes in the pattern of functioning. An immediate problem, however, is that there is considerable confusion in regard to the role of the fisheries departments with the setting up of fisheries corporations and the fish farmers development agencies. More often, the fisheries departments incline towards the view that the corporations and the PPDA usurp their functions. The departments now feel deflated.

CROSS PURPOSES

On the marine side, the construction and introduction of mechanised boats has been taken over by the corporations in most of the states. Fisheries departments have practically no say in the operations of larger vessels. On the inland fisheries sector, the departments feel that FFDAs have become a virtual threat to their initiative and authority. In most of the states, the fisheries departments and corporations function with distrust and suspicion toward each other. They are always on the guard to strengthen their respective positions. Working at cross purposes is not uncommon. The same is the position in respect of FFDAs and fisheries departments. The departments feel that culture fisheries sector, which is their main activity, having been taken over by FFDAs, their functioning in the districts concerned has become difficult. With the trend towards expansion of FFDA to cover all districts, what would happen to the working of the departments?, some of the directors feel. In course of time the situation will become more serious, if immediate steps are not taken to define the respective roles.

OVERALL RESPONSIBILITIES OF DIRECTORS

Corporations, FFDAs, and fishermen's co-operatives are instruments to achieve the objectives of fisheries development. The aim of all developmental activities is to increase fish production and create new incomes out of them. In this process, employment and economic prosperity would materialise. The overall responsibility for the planning and monitoring of the implementation of the programmes belongs to the fisheries departments. The corporations, FFDAs and co-operatives are their creatures,

created to facilitate the realisation of the objectives. While these bodies function by themselves they are there to implement the programmes of the departments but not to function as parallel departments. This philosophy and truth has not yet percolated into the minds of several directors of fisheries, managing directors of the corporations or chairmen/chief executives of the FFDAs. Steeped in old time traditions, most of the directors have not yet learnt the art of exercising the necessary supervision over the working of the Corporations and FFDAs. Once they exercise this inherent authority of theirs, they will be able to take credit (or discredit) for the results.

ROLE OF FISHERIES DEPTS.

The role of the fisheries departments, therefore, should increasingly be to guide, co-ordinate, and monitor the activities of the various bodies set up for the achievement of its objectives. It should also be their function to provide necessary funds and clearances required by the bodies. They should shed ownership of fish farms, ponds etc. in favour of FFDAs progressively, keeping reservoirs and riverine fisheries under their developmental control for the time being.

The departments have also to reorganise their district fisheries set-up suitably. In all the districts where there are FFDAs, the inland staff should be merged with FFDA. With such a merger, FFDAs can cover the entire area in their jurisdiction much faster. The fisheries administration in the remaining districts, not covered by FFDAs may be reorganised with the existing staff on the pattern of FFDA, with such adjustments as may be necessary to bring about faster development in pond culture. This can probably be achieved within

the present allocation of funds, with marginal increases. Reservoir and riverine fisheries developmental aspects in the districts can be undertaken through a separate set-up, by earmarking a few of the existing posts for the purpose. Commercial aspects relating to these can be entrusted to the corporations.

So far as marine fisheries development is concerned, the departments should have separate wings for the purpose, both at the directorates and in the districts. The basic features and developmental patterns of the marine sector are altogether different from those for the development of inland fisheries which are akin to agriculture. Marine fisheries matters have no semblance to agriculture. The marine units should be made to implement well-drawn integrated schemes aimed at upgrading the fishing capabilities of fishermen, providing facilities for preservation, storage, transport and marketing of their catches, and directly linking the fruits of the work to improvements in the social and economic conditions of the fishermen.

The toning up of the working of the Corporations should be an important function of the departments. On the marine side, very little purpose is served if the Corporations also indulge in shrimp fishing processing and export. This activity has already caught up well in the private sector. Their function should be to promote introduction of larger vessels, meant for fishing for varieties other than shrimp. This introduction can be for operation on their own or to help private sector enterprises. The Corporations can acquire vessels and give them on hire to private parties. They can, in the alternative, acquire vessels and sell them under

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hire purchase terms. This line of activity will result in faster introduction of larger vessels.

JOB OF PROFESSIONALS

'Fisheries' is a subject with a massive content of technology. In olden days, when it was only a question of issuing licences or leasing out tanks and ponds with wild fisheries, or managing fish curing yards, it was all right to have a civil service officer to head fisheries departments. In the present situation, it is imperative that technical officers with professional experience head the fisheries departments and fisheries Corporations. The subject is a technical one, and it is in the nature of things that technical officers should be in charge of fisheries development. The sooner the state governments realise this, the better it will be for fisheries development.

REPORT

Adventure is a Way of Life for Fishermen at Valiathura

Fishing activities of traditional fishermen in many parts of the south west coast lying between Cape Comorin and Quilon remain suspended due to heavy monsoon during June to August every year. The sea would be rough with breakers of unfavourable height and direction making it highly impossible for fishermen to go for fishing. These months thus constitute a lean season for them. But at some places such as Collachal, Kollangoda, Vizhinjam and Quilon the fishermen operate during these months to some extent because of the existence of bays or barriers.

DARING ACT

During a field study carried out by the scientists Mr. G. Luther, Mr. P. A. Thomas, Mr. P. N. Radhakrishnan Nair and Mr. R. Bhaskaran Achari of Vizhinjam Research Station of Central Marine Fisheries Research Institute, a very interesting fact about a daring act of fishermen was revealed. According to the survey conducted by these scientists the fishermen from the 14 centres around

Valiathura make use of the pier at the Valiathura centre for launching their craft and themselves.

UNIQUE TECHNIQUE

The launching is unique among fishing operations anywhere. The fishermen, mostly below forty years in age, including even boys of 15 years jump into the turbulent water from a height of 15 to 20 feet with their catamaran tied to their wrists with a long string. The operation starts when the catamarans are first transported by bullock carts to the pier from all the centres. Then the logs are assembled and the fishing gear is loaded and fastened tight by the crew at the front part of the catamaran. The luggage includes small luxuries of fishermen while at the sea such as betel leaves, beedies etc. packed in polythene sheets.

A nylon rope is fastened to the front part of the catamaran with its free end tied to the wrist or waist of the fisherman. He stands at the edge of the pier and on noticing a receding wave

with no major ones coming in he jumps first into the sea. The force of the receding wave takes him away from the pier. After that the catamaran too is pushed into the sea diagonally while another wave begins to recede. The catamaran too moves away from the pier. But the fishermen in the sea would control its stray movements with help of the rope tied to his wrist. After that other two fishermen forming the crew of the craft jump into the sea and board the craft as quickly as possible and move away into the sea,

FEES

The catamarans who engage in fishing from the pier of Valiathura have to pay a licence fee of Rs. 5 each for each monsoon season. This fee is collected by the Port authorities. This system of licencing began when the pier was constructed in 1956. During the period from 1977 to 81 about an average of 403 licences were issued during each monsoon season. Of these, the majority of the crafts operate boat seines while the rest hunt for fish by hook and line.

OPEN TO ALL

The pier of Valiathura is open to all fishermen. However it is mostly used by the fishermen of Valiathura. Others who do fishing from the pier during monsoon season are from Velaiveli, Vettukadu, Kannenthura, Cheruathura, Poonthura and Pananthura. The crafts are brought to the pier either by bullock carts or by lorries. There are coolies too making some money by helping the fishermen to load and unload during their operations. The sale proceeds from the fish thus caught is divided among the owner and crew of the catamarans. Owners of the craft

takes 40% while the crew divide 40% among themselves. Ten percent goes to miscellaneous payments like barbers and coolies. The fishermen pay invariably 10% of their daily earnings to the Church.

FISH SUPPLY TO TRIVANDRUM

Pier of Valiathura helps in the year round supply of fish to the city of Trivandrum. It is the daringness and the urge for adventure of the fishermen that makes this possible. Due to the launching facilities available at Valiathura, it tops in fish production in this area during the monsoon season.

The catamarans which come from the other centres to this pier for launching land at their respective places. But if the condition of the sea does not permit this, they would be permitted to land at other centres by the local fishermen, as a measure of goodwill. However, the product is not allowed to be sold in other centres. This is according to a code of conduct among themselves.

The scientists of Vizhinjam Centre of CMFRI have tried to find out since how long this practice has been in vogue at the Pier of Valiathura.

Before the construction of a pucca pier in the year 1956, the scientists found that fishermen made use of the wooden pier which existed before.

When the life of fishermen itself is riddled with risks and dangers, the way fishermen at Valiathura do their job takes their profession to the highest degree of adventure.

New Knowledge on Indian Marine Fisheries Sector

At the symposium on harvest and post-harvest technology of fish held under the auspices of the society of fisheries technologists (India) Cochin held during 24th-27th November 1982, at Cochin, experts in various fields of marine fisheries presented several papers. The papers presented covered, resources, fishing craft, fishing gear and methods, machinery, equipment and instrumentation, handling and transportation of fish, biochemistry and bacteriology of fish, preservation and storage, fish processing, fishery products and by-products, fish inspection and quality control and extension and education in fisheries.

RESOURCES

In a paper presented by Dr. E.G. Silas and V.P. Pillay possible management measures for the development of tuna fisheries by India were suggested and discussed, Mr. A. Noble pointed out that the potential yield of mackerel in Indian waters was around 127000 tonnes and the average yield in the 70's was 92000 tonnes. It was observed that there was not much of mackerel stock left in the sea for large scale development of the fishing industry on mackerel. The economic level of exploitation and effort necessary for obtaining maximum sustainable yield in regard to pelagic fishery resources along Karnataka coast was presented by Mr. P. A. Panicker. M/s M.R. Bhandari, N.D. Chaya and others referred to the resources surveys conducted by the Gujarat fisheries aquatic sciences research institute, Port Okha and pointed out that viable fishing grounds were located off Dwarka and

Jakhav. As a result of this location there had been considerable increase in fish production and related fishery activities in the area. M/s. P. Sulochanan and M.E. John pointed out that two productive grounds for squids were located off Calicut and Quilon. M/s. Vivekanandan and Krishnamoorthy pointed out in their paper that the most productive zone for prawns was located off Ramayapatnam in the North and off Port Novo/Cuddalore in the south on the east coast.

FISHING CRAFT

Mr. V.R. Sonti pointed out that, after an extensive research, it had been found that mangoe timber, when properly pressure impregnated with Ascu or CCA salts and Kiln dried, would be a good substitute for mechanised boats in place of teak. M/s. Unni Krishnan Nair and others explained the economic gain and better efficiency achieved by resorting to chemical treatment of indigenous wooden craft for proper preservation. M/s. K. Ravindran and others explained the new approach of providing elastometric antifouling and anti-boring coating for wooden vessels,

FISHING GEAR AND METHODS

M/s. G. Narayanappa and others reported that the results of experimental fishing carried out with a high opening trawl for catching bottom and off-bottom fishes indicated that these gave 1.67 times higher catch rate than bulged belly trawl. Studies conducted by Mr. N. Subramonia Pillai and others showed that bulged belly trawl was more efficient for catching shrimps and six seam

and high opening trawls for the capture of bottom and columnar fishes. Mr. P.A. Panicker and others presented a paper on the operation of a low cost two-boat purse seine of 250 x 33 mesh size from two non-mechanised traditional fishing craft (Thanguvallam) at 10-29 m depth, which proved to be encouraging. Mr. M. Shahul Hameed observed that concentration of sharks was comparatively higher at depths of 16 to 20 m. This observation was based on experimental, vertical long line fishing. Mr. G.D. Chandrapal pointed out that the techniques of fishing through achieving fish aggregation by rafts could be adopted in Indian waters with some improvements.

M/s. K.N. Kartha and K.A. Sadanandan concluded in a paper that mid water trawling from two boats was a promising technique for an economic operation, since the catch fetched a good price during lean monsoon months of June to August. Mr. K.N. Kartha and others reported the results of operation of two types of split belly trawls made of 12 and 8 triangular pieces with high horizontal and vertical spread, evolved for catching prawn and fish respectively. It was found that, apart from saving of net making material, the 12 piece net gave good results in respect of prawn catching and the 8 piece net in regard to fish. Mr. Jamil Ahmed described the utility of a low cost circular hatchery for chinese and Indian major carp seed production. Dr. T.A. Mammen and Mr. M.D. Menon pointed out that it was possible to exploit the anchoviella concentration in the Gulf of Mannar during the south-west monsoon period with medium vessels equipped for mid water trawling. Beyond this period the resources could be exploited along the Malabar and Karnataka coast with fine meshed purse seines. Mr. K.M. Joseph suggested that combination trawlers in the range

of 200-300 GRT capable of carrying out mid water/pelagic trawling, besides bottom trawling, may be introduced for fishing in Indian waters.

MACHINERY, EQUIPMENT AND INSTRUMENTATION

M/s. T.K. Sivadas and others presented a paper on electronic instruments for testing and standardization of fishing craft. Several electronic instruments were described and it was mentioned that all these instruments were fully indigenous and released for commercialisation. These instruments are (a) Bollard pull monitor (b) Speed and distance log and (c) Warp load meter. M/s. T.K. Sivadas and others had also presented useful information on electronic wire telemetering instruments successfully developed. These are a) trawl depth meter b) underwater tension meter c) tilt meter, d) angle of attack meter, a) mesh distortion meter, f) catch telemeter and g) net-flow meter.

M/s. D. Srinivasan and Anand Parthasarathy described a number of electronic instruments including an ocean going current meter, an expendable Bathythermograph and a small portable search light sonar. Mr. P.N. Joshi described an electrically heated stainless steel jacketed kettle of 80 litre capacity for use in fish processing industry for cooking of fish and prawn. Mr. P.K. Chakraborty gave the design of a 1000 kg/day capacity shark liver oil plant.

HANDLING AND TRANSPORTATION OF FISH

Mr. T.K. Govindan emphasised the urgent necessity of building up of a 'cold chain' in India. Mr. Johnny Royrvik stated that the use of insulated container of about one ton and the use of chilled sea

water or chilled fresh water would prove to be a more effective handling system. Mr. P.K. Salian and others described the effectiveness of the use of chilled sea water fish hold on purse seine boats for maintaining the quality of fish and enabling transportation to interior places and distant markets.

FISH PROCESSING

M/s. K. Venugopal and D. Damodaran Namboodiry explained the vast scope for the use of liquid nitrogen in IQF food technology. Mr. G.E. Samuel and others detailed the experiments conducted by them on the canning on marlin fillets in oil. M/s. P.K. Vijayan and K.K. Balachandran explained a process of canning mackerel as skinless and boneless fillets in oil. Mr. C.P. Anand explained the economic use of coal dust for fish drying mixed with common salt in the proportion of 1:2. M/s. S. Durairaj and P. Pitchaiah detailed the technique of production of quicksalted cakes of the sea bream (*Lethrinus spp.*). M/s. Mr. G.G. Harimeth and others described a new method for utilisation of oil sardine for human consumption,

FISHERY PRODUCTS AND BY-PRODUCTS

The use of fish ensilage in supplementary feeds for fish culture was explained by Mr. R. Srinivasan and others. The preparation and use of sardine silage in the formulation of minimal cost diet for chicken was explained in a paper by Mr. Lessi and others. The development of pickled products from low cost fresh water fishes was explained in a paper by Mr. A. K. Chattopadhyay and others. M/s. Syed Ahmed Ali and K. H. Mohamed brought out the utility of mantis

shrimp for compounding feeds for the culture of penaeid prawns. The details of individual pieces and equipment and machinery for a pilot plant for the production of shrimp extract was brought out in a paper by Mr. Abuthahir Ali and Mr. Thankappan. Mr. P. T. Mathew and others presented a paper on formulation of artificial diet for common carp. They found that maximum weight gain was recorded in the case of feed which contained 50% of tapioca starch, 20% groundnut cake, 20% prawn shell powder and 1% ground nut oil. The details of recovery and yields of minces from silver belly, mackerel, and sardine-like fishes using Baadar 694 meat/bone separator was brought out by M/s. C. D. Wood and Mr. K. King. It was concluded that a 5.0 mm drum orifice was suitable for general use.

FISH INSPECTION AND QUALITY CONTROL

The extent of contamination of frozen shrimp for export with filth was brought out in a paper by M/s. Francis Thomas and P. R. G. Varma. The use of freshness meters for quality assessment was presented by M/s. P. R. G. Varma and others and M/s. R. G. Poulter and C. A. Curran.

EXTENSION AND EDUCATION IN FISHERIES

The fishermen's share in the returns from retail fish sales was presented by M/s. K. K. P. Panikar and R. Sathiadas. It was pointed out that the fishermen's share was between 31 to 68%. An economic analysis of purse seining from 13.25 m purse seiner and from artisanal fishing along the Kerala

coast was presented by Mr. P. A. Panicker. The state of the economics of operation of small mechanised trawlers was dealt with by Mr. H. Krishnaiyer and others. The prospects of deep sea fishing in India was discussed by Dr. T. A. Mammen.

Dr. P. V. Dehadrai, Fishery Development Commissioner pointed out that the extension link in fisheries was very weak and that it required to be strengthened at state and UT levels. It was also mentioned that the technical developments in inland and marine sectors achieved by various institutions should be subject to assessment in terms of energy inputs and cost benefits under pilot project study and released for extension.

Indian waters abound in fish and Britannia has entered fishing as part of the national policy to organise a more scientific exploitation of resources in future. Catches are landed in seafresh condition and speedily processed to preserve the natural product quality.

The Britannia fleet of 6 trawlers includes two modern 23 metre steel vessels imported from Mexico. It is proposed to augment the fleet in a phased manner, and possibilities of entering the field of deep-sea fishing are being explored currently.

Supplementing these efforts at sea is a programme of developing brackishwater prawn culture and Britannia is among the pioneers investigating this area. The objective in both cases is to secure the freshest and best quality raw materials.



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Rao Birendra Singh Commissions Fishing Vessel for CIFE at Goa

A training-cum-research vessel "Saraswati" built by the Goa Shipyard Limited for the Central Institute of Fisheries Education, Bombay, was commissioned by Mr. Rao Birendra Singh, Union Minister for Agriculture and Rural Development, on 22nd December 1982 at Vasco-de-gama, Goa. The vessel was built at Goa Shipyard Limited. The construction of the vessel was undertaken with the financial and technical assistance under the Norwegian aid.

DESCRIPTION OF THE VESSEL

The vessel is a deep sea going single crew vessel with extended forecastle, forward deck house, rounded fore-stern and transverse stern. The main engine is Cat D 398TES with 825 BHP output at 1225 RPM. The vessel has an overall length of 36.57m, moulded breadth of 8 m. and moulded depth and draught of 4.40 m. each. The GRT and NRT of the vessel are 311.66 and 151.95 respectively. She is capable of having a cruising speed of 11.5 knots and has an endurance for 22 days. Accommodation is available for 41 persons including crew members.

On the main deck, there is provision for two of 6 men cabins, one double cabin, laboratory, stores and mess room. Five trainees can work at a time in the laboratory which is fitted with modern analytical instruments. Below the main deck are provided the sonar compartments, engine and steering



HON'BLE MINISTER MR. RAO BIRENDRA SINGH
UNVEILING THE NAME PLATE 'SARASWATI'

rooms, deep tanks for fuel and oil, potable water and cabins. The wheel-house is equipped with latest and sophisticated instruments like radar, satellite navigator, gyro compass, auto pilot, speed and distance log and radio-telephone. Also provided in the wheel-house are modern fishing aid equipments like sonar with sonar scope, simrad EQ 38 and EQ 50 echo sounders with magnifiers and echo scopes, trawl eye, pulse transmission etc.

Variety of winches like the powerful hydraulically operated net winch and the hydrographic winch are provided to handle different types of gears and oceanographic equipments. The

on-board hydrographic instruments include Nansen bottles, reversing thermometer, STC meter, oxymeter, bathythermograph, light measuring instruments, plankton samplers, dradges etc. The fish hold has a capacity of 20 tonnes at -30°C .

The vessel is suitable for bottom and pelagic trawling with manual, remote and auto arrangements and also for trolling, long lining etc.

The keel for the vessel was laid at the Goa Shipyard on 14th March 1978. The launching of the vessel was done by Mrs. Vijaya Devi Rane, wife of the Chief Minister of Goa, at the Goa Shipyard on 22nd November 1980.



CAPT. CHAVAN HANDING OVER THE DOCUMENTS OF M.V. SARASWATI TO DR. S. N. DWIVEDI DIRECTOR, C.I.F.E., BOMBAY

PURPOSE

The Central Institute of Fisheries Education proposes to use the vessel to impart intensive training to the candidates undergoing training at the Institute in different fishing methods, collection and analysis of hydro-biological data on-board, fresh fish handling, including preservation on-board, and in the use of navigational aids.

NORWEGIAN AID

For the past several decades Norway has been extending a major support for the development of the marine fisheries of India. In order to promote the development of deep sea fishing, as part of their assistance programme, NORAD extended assistance both financial and technical, for the construction of six large sized fishing vessels at Goa Shipyard MFV "Saraswati", a research and training vessel, is one of them. The Indian fishing industry is indeed grateful for the help extended by NORAD

TRUE INSTRUMENT OF LEARNING

On the occasion of the commissioning of the vessel, Mr. Rao Birendra Singh said that the welfare of the people was intimately connected with effective utilisation of natural resources. He pointed out that India was endowed with rich natural resources. The need for optimum utilisation of these resources for the benefit of the people had been the prime concern of the administrators, planners and scientists. He said that at present we were meeting only a small fraction of food requirements from the sea. In the 200 mile exclusive economic zone declared by the government, there was untapped potential which posed a new challenge. The country was fortunate in having scientific talent and technology know-how to meet this challenge. He observed that the Central Institute of Fisheries Education had a great role to play in this direction. He was confident that MFV "Saraswati" would

become a true instrument of learning.

CIFE AS NUCLEUS FOR HIGHER FISHERIES EDUCATION

He expressed the view that the fisheries education and research at university level required a major reorganisation and restructuring. He felt that Central Institute of Fisheries Education could serve as a nucleus for such a reorganised system. He complimented the Goa Shipyard who had constructed the vessel and other exploratory fisheries vessels through the Noorwegian aid. He wished all success to the Director and staff of the Central Institute of Fisheries Education, Bombay, in the advanced training programmes envisaged to be taken up for the overall development of fisheries of the country.

FISHING ZONES

The Union Minister said that the Central Government was planning to reserve coastal waters upto 10km for the exclusive use of traditional fishermen and country craft. The plan was to permit small mechanised boats to operate between 10 and 23kms. and big trawlers beyond 23kms. limit. He said that his Ministry would soon inform the state governments about the use of the coastal waters and he expected the Government of Goa also to fall in the line. He did not want the small fishermen to suffer because of the activities of larger vessels,

FISHERMEN WELFARE FUND

The Union Minister announced that a fishermen welfare fund was also proposed to be established. He said that there was a move to establish a fisheries university so that various fishery colleges could be affiliated to it. He also observed that the government was considering

a proposal to sign the International Convention on the Law of the Sea, so that the fishery resources could be exploited in collaboration with other countries. He felt that, as against the present annual marine catches of 1.9 million tonnes, it was possible to increase this to 4.5 million tonnes.

FACILITIES NOT AVAILED OF

Mr. Singh expressed his displeasure at the present situation of the country's youth not availing of the various facilities and incentives provided for the development of fisheries. Among the facilities extended, mention was made of subsidies for the construction of large fishing vessels upto 1/3rd of the cost and availability of soft loans upto 95% of the cost of vessels.

BETTER PERFORMANCE OF IMPORTED VESSELS

Mr. Singh said that India could hope to be a strong nation only when it occupied a dominant position in sea-faring. It was the weakness of the country on sea-front that forced her to remain under foreign subjugation in the past. He emphasised the need for a large fleet of deep sea fishing vessels. Although the required technology for constructing fishing vessels was there in the country, the government was forced to permit import of fishing vessels, because of their better performance compared to those manufactured in the country. He felt that this problem could be solved if different shipyards specialised in certain fields.

STAY AT SEA LONGER

The Chief Minister of Goa, Mr. Pratap Singh Rana, who participated in the function, stated that the trawling would not be an economic proposition if the operators wanted to return to the shore on the same day. For this reason, he said that, a number of trawler owners were finding it difficult to repay the loans obtained



HON'BLE MINISTER, MR. RAO BIRENDRA SINGH ADDRESSING THE MEETING ON THE OCCASION

from banks or from fisheries cooperative federation. He emphasised the need for more fishing vessels that can stay out for long out at sea and trained personnel to exploit the exclusive economic zone.

SOPHISTICATED VESSELS

Vice Admiral N.P. Datta, Chairman of Goa Shipyard, stated that MFV "Saraswati" which was the fourth in the series of six such vessels constructed at Goa Shipyard for the Central Government would prove to be the most sophisticated fishing vessel of the country. The vessel had an endurance of 22 days and was equipped to undertake research work as well as training programmes.

SARASWATI WILL UNDERTAKE RESEARCH TOO

Dr. O.P. Gautam, Secretary, Department of Agricultural Research and Education and Director General of ICAR, said that MFV. "Saraswati" would also be used to carry on research work pertaining to fishing gears, fish processing,

oceanography and biological aspects of marine resources. He said that ICAR believed in bringing about the qualitative improvement in fisheries education and research.

MILESTONE

Dr. S.N. Dwivedi, Director, Central Institute of Fisheries Education, earlier welcomed the gathering. He said that the commissioning of the MFV "Saraswati" was an important mile-stone in the history of his Institute. This Institute was started by the government with UNDP/FAO assistance in 1960. He said that the Institute had become a major Institute for manpower education in fisheries. It was now developing a new department of ocean management. He pointed out that the new vessel would be a major facility for fisheries education and research in India. He said that Indian waters had large quantities of low cost fish which could be exploited and utilised by converting them into the consumer products. With the help of MFV "Saraswati" the Central Institute of Fisheries

Education would endeavour to contribute in this respect. The vessel would also be used for developing the regional training programmes for fishery officers from the countries of Indian ocean region. He expressed his gratitude to the Union Minister, Mr. Rao Birendra Singh, for his keen interest in fisheries and for recognising the necessity of manpower education in the field through the Central Institute of Fisheries Education. He also expressed his gratefulness to Dr. Gautam for his guidance in planning, developing and execution of training programmes at the Institute. He also paid rich compliments to Admiral Datta, Chairman, Goa Shipyard for the significant role he played in the construction of fishing vessels in India and developing repair and maintenance facilities for fishing vessels at Goa Shipyard. He conveyed his gratitude to Mr. Rane, Chief Minister of Goa for extending

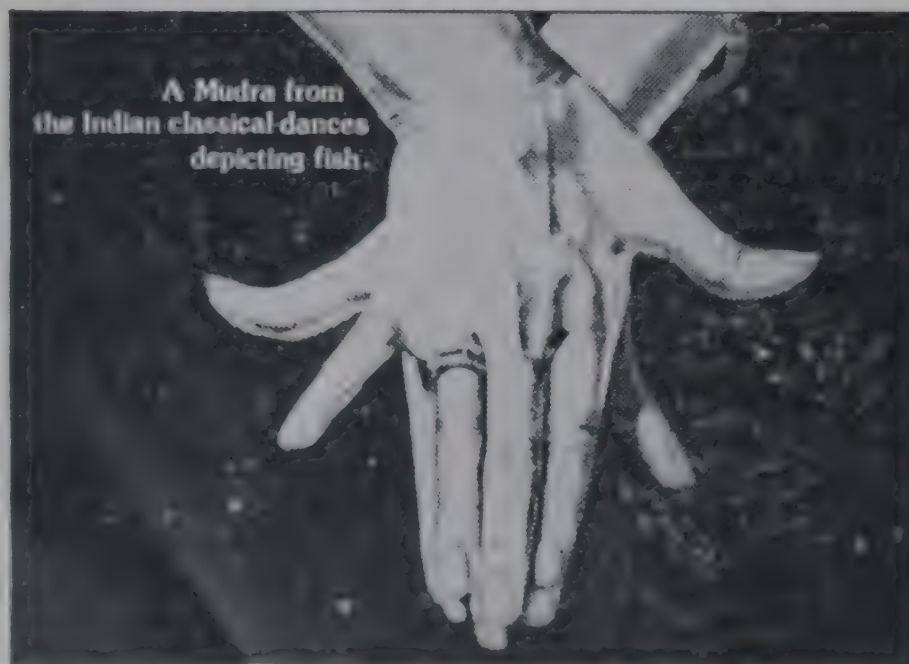


EXPLORATORY FISHING VESSEL SARASWATI

all his assistance to fisheries training programmes. He said that MFV "Saraswati" would be operated from Goa.

He thanked all the representatives of the Norwegian embassy and NORAD for their support and technical collaboration.

Fish has always been there in our past. It will always be in our future.

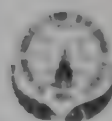


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Haryana Needs a Class of Committed Fishermen

According to a report on development of Haryana fisheries in relation to adjoining states published recently by the Directorate of Fisheries, Haryana, there is an urgent need to develop a class of fishermen in Haryana. 'Practically it does not exist' the report says, There has been a continuing delay of transfer of technology to the farmer. The state of Haryana today has a population of 5000 local fishermen. Annually there is an influx of 8000 migratory fishermen into Haryana from the adjoining states.

The local fishermen are 'practically ignorant of fish farming techniques for obtaining high fish production from water' according to the report.

PROGRAMME

This year, the Government of Haryana allocated about Rs. 48 lakhs for the development of fisheries in the state, such as intensive fisheries developmental programme; development of fisheries in marshy areas; education and training and extension; development of catfish culture; development of lake and reservoir fisheries and fish farmers development agencies at Karnal, Sonapat, Rohtak, Gurgaon and Kurukshetra.

ACHIEVEMENTS

During 1981-82 the state of Haryana has achieved a production of 3000 tons of fish, 3 million Nos. of fry and fingerlings and developed

a nursery area of 21 hectares. During 1982-83 it has set targets for production of fish at 3250 tons, fish seed production at 8.50 million and nursery area of 25 hectares to be developed.

As far as the area for fisheries available in Haryana is concerned it has about 2,900 hectares of water area of ponds, reservoirs and lakes. Rivers and canals offer an area of 16,000 hectares.

The efforts of Haryana fisheries department have so far covered one third of the 1500 perennial ponds having a culturable area of 2000 hectares. Some of the ponds have their water drawn from neighbouring canals and tube wells. Several small reservoirs were constructed in Gurgaon and Mohindergarh districts for controlling floods. Large quantities of fish are produced from the reservoirs of Dhoj, Badkhal and Damdama.

About 2000 hectares of swampy area has been included in this year's plan for the development of fisheries in the state.

For fish production by farming one needs a good supply of quality fish seed. The state of Haryana has 12 seed farms in a total area of 21 hectares. Both induced breeding and collection from natural grounds are being employed for the production of fish seed. Some fish seed farms have glass jar and plastic bin hatcheries too, Damdama has the most modern fish seed hatchery in Haryana.

It has been observed that the gram panchayats who control the ponds are ignorant of the methods of fish culture. These ponds are the major source for the Department to stock the seed produced by them. Though the Department strives hard for the production of the seed and supply the same to gram panchayats, the officials are depressed by the way gram panchayats make use of the same.

First of all, there has been reluctance on the part of gram panchayats to pay for the seed supplied. Next is the lack of good care of the seed supplied. Predatory and weed fish are not controlled properly by the gram panchayats who are supposed to ensure that the fish grow to a good size. Since they do not pay properly for the fish seed, their ponds are sometimes stocked with only 1000 seed per hectare. Poaching is hardly prevented by the gram panchayats. The ponds are neither fertilised nor the fish fed artificially. Hence the production per one hectare of pond area is only 300 kg. per annum. Due to poor handling of the stock, there has been a low yield of major carps which have a good demand. However, common carp grows well without much care from the gram panchayat ponds but it has lesser demand in the market.

PRIVATE SECTOR

Now, with the liberalisation of the leasing rights there are about 400 private fish farmers who take care of the ponds and some of them have achieved a production of 3000 kg. per hectare. Some of them have fringed their farms with poultry, duckery and piggery. Some grow vegetables too. However, thanks to the response to the efforts of the fisheries department, even though it is far less, the small

beginning is now attracting a larger section of private entrepreneurs.

HANDICAPS

There are some handicaps for the department in supply of seed to the farmers. One is transport and it has to be improved on top priority. Spawn is transported in oxygen packed polythene bags. Fry is carried in open rectangular containers made of tarpauline supported by a framework of angle iron. Brooders are also transported in these containers. These practices have reduced the mortality to a very low level. With good transport arrangements, the mortality rates can be brought down considerably.

ILLEGAL FISHING

There is an influx of nearly 8000 migratory fishermen into Haryana every year for the exploitation of river fisheries. These are brought in by the contractors who provide fishing nets etc. to them. Illegal fishing is rampant in certain areas. Often cases of poisoning and dynamiting the fish take place in the upper reaches of river Jamuna.

In villages, Gram panchayats sell the rights to fish in their ponds, by auction or otherwise. But they hardly consult the department of fisheries before doing so. Not bothering to consult the department of fisheries, the gram panchayats allow the contractors to operate as they wish. Fingerlings are often caught and sold in the market. Middlemen play havoc in the fish markets. There is an urgent need to organise fishermen's cooperative societies in Haryana to ensure regulated fishing operations and to eliminate undesirable practices.

The fish produced in Haryana secures varied prices in different market it is sold. In Calcutta it fetches about Rs. 30 per kilo while

at the production centres it may fetch only Rs. 2 to 3. Fish is exported to Delhi, Calcutta, Ludhiana, Chandigarh. Dehradun and Amritsar.

DIRECTOR TO HAVE CO-OP REGISTRAR'S POWERS

The Government of Haryana is now considering the proposal to delegate powers of Registrar of Cooperative Societies to the Director of Fisheries so far as fishermen's societies are concerned. When it is properly organised, it may pave the way for employment of large section of unemployed youth in the fishing line, particularly from the weaker sections. At present there are only two functional fishermen's cooperative societies in Ottu and Siera districts. According to the Fisheries Rules, 1966, fishing rights in the public waters are leased out to fishermen's cooperatives at 10% below the highest bid offer made by the other contractors.

TRAINING

Haryana state fisheries department has started training rural youth in fish culture since 1975. Sixty persons were trained during the first stage. Lack of funds have caused the termination of the programme in the later years. During 1981-82 the programme has been revived and the State department trained about 100 persons in fish culture. Fifty villages will be benefitted by these programmes. Training to the fisheries departmental personnel was provided at the Central Institute of Fisheries Education at Bombay during last year. Training was also given for fisheries officials at the Central Fisheries Institute at Barrackpore and Hyderabad.

EXTENSION

Extension service has been extended on a intensive scale in Haryana. The department has taken long lease of 15 ponds from

different gram panchayats for demonstration purposes. Programmes are often broadcast through radio and television to the rural masses of the state. The rural masses in the potential fishing areas are being profusely exposed to exhibitions and literature on fisheries. The proposal by the state department for more audio visual aids to educate the masses are expected to receive the approval of the state government soon.

ANGLING

One most interesting factor in the fisheries set-up of Haryana is angling. Reservoirs and lakes have been earmarked for this sport which are gaining popularity. The demand for angling licences has been on the rise and during last year it has reached a figure of 4000. Some of the professional anglers sell fish in the markets. Even the aquarium fish is becoming more and more popular among the younger generation in Haryana. While, in view of the main developmental programmes, this activity looks small at present, there are countries which make millions out of aquarium fish and therefore commercial sector in this line has also to be promoted in the state.

FISHING CHIMES

INVITES

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Special reports on Fisheries Projects and Institutions are also welcome:

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Conservation of Inland Fisheries

S. P. CHAUDHARY

Though mankind have recognised their common interests in fisheries long ago, its importance has been realised very recently. However, their care and protection has not received enough attention. The fisheries resources are renewable resources and they are available year after year, if they are suitably protected and improved. Due to the failure to provide for the protection and improvement of resources, the need for sound biological information and decisions by the government based on technical facts in this regard has now assumed importance. One of the important aspects of fisheries administration is conservation through limiting the entry into fishing, declaring closed season, sanctuaries, mesh regulation, protection of breeders etc. based on an analysis of the fishery situation from time to time.

PURPOSE OF FISHERY REGULATION

The purpose of any fishery regulation from a strictly conservation point of view is to provide a more bountiful harvest of fish without upsetting population balance. However, the recent social and economic trends have so impinged upon matters of fishery management that need for conservation is subordinated to them. Most of the regulations are based on the theory that the fewer the fish caught, the more will be available for further fishing. The general theories on which most regulations have

been based can be classified as follows:

- a) It is necessary to have a large number of spawners to build future stocks.
- b) All the smaller fish must be fully protected as the majority will grow into big fish.
- c) It is very essential to protect fish during the spawning season.

TYPES OF REGULATIONS

In the past, regulations based on empirical knowledge were imposed to get maximum sustained yield of catch. These regulations assumed the form of protective legislation on mesh limit, legal size, closed season, declaration of sanctuaries, limit on catches, restriction on effort, prohibition of use of destructive methods of fishing etc. Besides these, it has now also become necessary that certain important aspects viz. decisions for the construction of dams and weirs, introduction of exotic flora and fauna, restriction on discharge of pollution etc. should be conducive to effective fishery management.

Some of the important regulatory measures which can be employed in our country are discussed broadly keeping in view the economic aspects of the following regulations:

- i) Restriction on use of fixed engines.
- ii) Restriction of size of fish for capture.

- iii) Declaration of fish sanctuaries vis-a-vis closed season.
- iv) Restriction on construction of dams and weirs.
- v) Restriction on discharge of pollutants.
- vi) Introduction of licensing and leases of fishing rights.
- vii) Regulating the markets.
- viii) Restriction on introduction of exotic fauna and flora.

DEVELOPMENT OF FISHERIES LEGISLATION IN INDIA

The necessity for protecting valuable fish and fisheries resources of India was felt as early as in 1897, when Indian Fisheries Act 1897 (Act IV of 1897) was passed by the Governor General of India in Council. Earlier to this, Sir Arthur Cotton who was in charge of a number of dams and weirs constructed in Southern India during the sixties of the last century found that construction of dams and weirs might adversely effect the local, coastal and inland fisheries. After investigating the possible biological effects in these areas Sir Francis Day (1873) had come to a conclusion that there was widespread destruction of mature breeders, fry and fingerlings and urged in his report to adopt legislative measures to conserve these fisheries. Due to this finding, Government of India promulgated the fisheries Act on the 4th February, 1897.

Based on the Indian Fisheries Act 1897, many states have thereafter framed their own rules and regulations for the proper management and conservation of fisheries. Certain states such as Maharashtra, Goa, M.P. etc. have enacted their own legislations.

Most of the regulations framed under the various legislations empowered the state governments to enforce closed seasons, prohibit

fishing in certain zones on a continuing basis, to preserve them as fish sanctuaries, enforce restrictions on the size of meshes of fish nets and the type of net permitted to be operated, to determine the minimum size of fish to be captured etc.

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PROBLEMS OF ENFORCEMENT

The Manager, Fishing Chimes, 15-10-3, Visakhapatnam-530 003

Although certain categories of fisheries officers are empowered to enforce the regulations, owing to socio-economic conditions of the fishermen, the enforcement of the restrictions has become difficult. Strict enforcement some times results in threat to the life of the enforcing officials. It also some times lead to complaints against the enforcing officers. In this situation, what appears necessary is to enforce only such of the regulations which are absolutely essential for the protection of fisheries and maintenance of the

population dynamics. It appears that the enforcement of closed season during the breeding period is of paramount importance. The state fisheries departments have to direct all their energies to successfully prevent fishing of breeders during this period. This can be done only by providing alternative means of living to fishermen. One alternative is to identify the fishermen who normally engage in the exploitation of breeders and provide them with leases of tanks and ponds so that they can culture fish in those water

bodies and exploit the pond fishery in the place of their normal practice during the breeding season. Financial, technical and training support can be extended to these fishermen to come into the fold of fish farmers development agencies. Having thus diverted the fishermen, the patrolling of the areas where breeders congregate can be intensified. Any poachers who may indulge in the activity can be apprehended without much socio-economical hardship to the fishermen.

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Programmes for Freshwater Aquaculture Development in India

Dr. VIJAI DEV SINGH and
V. SAMPATH

INTRODUCTION:

India has potential resources in respect of inland waters which could be suitably developed for aquaculture purposes. The inland fishery resources in India comprise of about 1.5 million ha of tanks and ponds, 3.0 million ha of lakes and reservoirs, 1.42 million ha of brackishwater swamps and estuaries and 29,000 km stretch of major and minor river systems with their distributories for development of capture and culture fisheries.

There has been a gradual increase in the fish production from the inland sources over the years. As compared to 7.48 lakh tonnes of fish produced in 1973, the present day production (as of 1981) is about 9 lakh tonnes. The total inland fish production is expected to reach a level of 13 lakh tonnes by the end of 1984-85 owing to a number of measures taken by the Government for promotion of research and development oriented activities in the field of aquaculture.

TRANSITION FROM CAPTURE TO CULTURE FISHERIES

Eventhough wild fish culture practices have been in vogue in the eastern part of our country, especially in West Bengal, both

under freshwater and brackishwaters, the fish yield had been very low due to a number of causes right from wild stocking to exploitation. Gradually with the development of technologies for controlled fish culture practices by the national fisheries institutes and agricultural universities, an awareness has been created among the state fisheries departments and private farmers for taking up small scale or large scale culture fishery activities in the last one or two decades. Further development in this direction has led to induction of more number of non-traditional areas and the people of those regions also have taken up semi-intensive and intensive aquaculture activities to boost inland fish production. The Government, considering the necessity for filling up the gap between the demand and supply, introduced a number of culture oriented programmes in the inland fisheries development sector, which is the only answer to increase production from unit area to more than 6 to 10 folds as compared to that from the traditional practices.

With a view to demonstrating the viability of freshwater and brackishwater aquaculture to the interested farmers especially in the rural areas to develop their economy and living conditions,

the Indian council of Agricultural Research through Central Inland Fisheries Research Institute (CIFRI) and Central Marine Fisheries Research Institute (CMFRI) has undertaken a number of coordinated projects in selected areas in cooperation with the concerned state governments. The CIFRI, for example, have taken up projects for extending the technology of composite fish farming in tanks and ponds, in reservoir fisheries development, air-breathing fish culture in derelict swamps/waters, brackishwater fish farming, etc. The composite fish culture technology involves culture of compatible indigenous and exotic carps or other fish species in certain proportions in properly managed tanks and ponds. Fish production as high as 6,000 - 7,000 kg/ha/yr or even more has been demonstrated under these programmes. In the brackishwater fish culture activity, a production of 1,000 to 1,500 kg/ha/annum of prawn/fish has been demonstrated through mono-culture and poly-culture activities. The results obtained from these programmes have been very helpful in inducing a large number of farmers to take up intensive composite fish culture activity in small tanks and ponds and brackishwater prawn culture as well as air-breathing fish culture in different parts of the country.

PROGRAMMES FOR AQUACULTURE DEVELOPMENT

To systematise aquaculture activity for increasing the employment potential among rural population and to improve the economy of the rural areas, various beneficiary oriented programmes have been or being taken up for implementation during the current plan period. The major programmes and policies are enumerated hereunder:

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We have Modern Sea food
Processing Plants at Madras
Visakhapatnam and Calcutta.

We are extending our operations to Kakinada and Tuticorin soon

Our Super - Quality Products
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Stored following the
Strictest Hygienic Standards.

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FISH FARMER'S DEVELOPMENT AGENCIES (FFDAs)

A scheme of Fish Farmers' Development Agencies was introduced as early as in 1973-74 on a pilot scale with the main objectives of (i) utilising by proper development the fallow lying and ponds for fish farming; (ii) creation of a new cadre of trained fish farmers to maximise fish production from unit water area and (iii) providing necessary financial and technical/extension support to the needy farmers to undertake freshwater aquaculture activity. Under the Centrally sponsored sector the scheme has been extended to 50 selected districts under the programme of development of aquaculture, during the VI Five Year Plan (1980-85) with a total outlay of Rs. 500 lakhs. This programme has so far brought under fish culture more than 8,000 ha of water area benefiting about 6,000 trained beneficiary fish farmers and this resource is now in a position to yield more than 500 tonnes of additional fish per annum. The National Council of Applied Economic Research (NCAER) which evaluated the FFDA programme has commended their role in inducting more and more number of non-traditional areas/farmers in fish farming, in creation of rural employment opportunities and in increasing the economy of the rural population.

INLAND FISHERIES PROJECT

Based on the experience gained in spreading the new technology of composite fish culture to the fish farmers' level through the FFDAs programme, an integrated Inland Fisheries Project with World Bank assistance is under implementation in 5 selected inland states having the FFDAs as the nuclei of activity. This Project envisages development of 117,000 hectares of water area

over a period of 5 years in 58 selected districts through FFDAs with sufficient infrastructural facilities through construction and operation of 27 commercial fish seed hatcheries by the state fish seed development corporations. The Project with an approved outlay of Rs. 37.91 crores is being financed by the World Bank to the tune of 20 million US \$ which is 48% of the total project cost. This Project is the first of its kind being financed by the World Bank.

The Project on full development would be in a position to produce additional 2 lakh tonnes of fish and 460 million quality fish seed per annum. Besides this, the Project is expected to create 4,000 permanent jobs for un-skilled labour, 10,000 part-time jobs for un-skilled labour, 4,000 full-time jobs for undertaking marketing of additional fish produced and about 2,30,000 man-years of labour for hatchery construction and fish farm improvement activities. A new cadre of about 50,000 fish farmers would be created by implementation of this project in the country.

The 58 FFDAs now functioning under this Project so far have brought under culture about 10,000 ha water area through which about 15,000 individuals have been benefited. So far 14,000 farmers have been offered short term training in intensive fish farming and about 80 million quality fish seed have been stocked in the farmers' ponds. Prospective sites for about 20 commercial fish seed hatcheries/farms have already been finalised and the construction has started in about 7 fish seed farms.

RESERVOIR FISHERIES

The reservoir fishery resource consists of large, medium and small reservoirs covering approxi-

mately an area of 3.0 million hectares. The average yield from these reservoirs varies between 7 and 10 kg/ha/annum. But in some stray cases the production has been as high as 60-80 kg/ha/annum where regular stocking, management and exploitation practices have been undertaken by the concerned state fisheries departments. To improve the efficiency of the reservoirs with respect to fish production it is very much essential that proper scientific management practices starting from stocking of the reservoirs to exploitation and marketing level are laid.

For finding out the best reservoir fisheries management practices to be adopted for enhancing the yield from unit reservoir area, a pilot study has been initiated in Rajasthan as one of the subsidiary components of the Inland Fisheries Project with World Bank assistance. The total project cost approved for implementation of this pilot study is Rs. 18.6 lakhs which will be 100% Central grant-in-aid to Government of Rajasthan, reimburseable fully by the IDA. The project study has already commenced and is expected to be completed by March, 1985.

The study, on its completion, would be in a position to provide us suitable guidelines for formulation of future large scale reservoir fishery management projects which could attract institutional finance from bilateral or international sources.

FISH SEED PRODUCTION AT NATIONAL LEVEL

Eventhough the technology of composite fish farming has been perfected over the years, the major bottleneck in extending the freshwater aquaculture to more areas is the inadequacy of quality fish seed. At present, more than 80% of fish seed requirement is met from natural sources through



programmes of fish seed collection which comprise of both desirable and undesirable species of a highly mixed nature. The present level of fish seed availability in our country is about 1,500 million (1980-81), major portion of which is through collection from natural sources.

With the introduction of hypophysation technique, the activity for commercial fish seed production has grown to enormous proportions, through which the right type of the seed at the right time could be made available to the needy farmers.

Based on the success achieved during the last few years, commercial fish seed production is being undertaken under various programmes at national level.

Under the Inland Fisheries Project with World Bank assistance, as already mentioned earlier, 27 commercial fish seed hatcheries have been proposed to be set up in 5 selected States viz. West Bengal, Bihar, Orissa, Madhya Pradesh and Uttar Pradesh through their fish seed development corporations. Two

types of fish seed hatcheries-cum-fish farms would be established—25 hectare size and 10 hectare size—to produce about 460 million quality fish seed per annum to meet the requirement of 117,000 hectares of water area under the Project.

Under a new Central sector scheme, viz., National Fish Seed Programme, fish seed production will be taken up at the national level in 11 selected States which are not covered by the World Bank Project and selected river valley projects. Under this programme, the central government would provide necessary financial and technical assistance to these states/ river valley authorities, for construction and operation of 25 nos. of 10 ha fish seed hatcheries-cum-farms, which will be designed to produce totally 250 million quality fish seed per annum. Seed of Indian major carps, common carp and Chinese carps would be produced from these fish seed farms to meet the demand of the farmers.

Besides these two programmes, small fish seed hatcheries-cum-farms are also being provided to the selected 45 fish farmers'

development agencies to meet the fish seed demand of the farmers in the respective PPDAs. These programmes would go a long way in making the selected areas self-sufficient in fish seed production and supply for aquaculture activity. Under a special programme of distribution of 'Mini-Kit' for induced breeding of fish introduced from 1982-83 for the rest of the Sixth Plan period, each of 108 PPDAs in the country would identify and train 20 fish farmers per annum and distribute mini-kits to them. These kits would be made use of in fish seed production in the farmers' ponds.

ORGANISATION OF FISH MARKETING

For sometime now, a need for organising inland fish marketing in the country with sufficient infrastructural facilities for storage, transport and marketing has been very much felt. Eventhough the annual inland fish production is to the tune of 9 lakh tonnes, for want of sufficient storage and transport facilities in the rural areas and local demand, the fish farmers are not getting the maximum return from fish produce. If there is a well organised marketing system with all modern facilities for storage, transport and marketing, we can foresee a better prospect in increasing the aquaculture activity in the rural areas through various programmes and fetching increased remuneration to farmers.

To streamline the inland fish marketing in the country and to explore the possibilities of organising a co-operative marketing structure, a feasibility study has been entrusted to a Management Organisation under the Inland Fisheries Project with World Bank assistance. The study on completion would make available the basis on which the inland fish marketing is functioning in the country, the

production from inland resources, marketing structures, channel of marketing, flow of fish to the consumers, the existing infrastructural facilities, the trend of fish marketing with the prices and future organisation of fish marketing, so that the inland fish marketing could be streamlined in a uniform way in all the States.

INTEGRATED FARMING IN AQUACULTURE DEVELOPMENT

If all the available waterspread areas are to be utilised to the fullest extent, it is pertinent that integrated farming systems are introduced through culture of fish with paddy, piggery, poultry, duckery, etc., and the fallow derelict water swamps are developed for aquaculture activity.

Integrated fish farming in the form of paddy-cum-fish culture, fish-cum-duck culture, fish-cum-poultry farming and fish-cum-pig farming have all been developed in various countries during the last few years. The main aim behind this type of farming system is re-cycling the farm wastes as inputs for fish culture with a view to minimising the use of inorganic fertilisers for increasing the productivity of the ponds and to get the advantage of double-cropping to enhance financial returns. All these systems have been aimed at production of high quality protein food at the lowest cost.

HIGH ALTITUDE FISH CULTURE

Fish culture in snow-fed and spring-fed streams of Jammu & Kashmir, Himachal Pradesh and in high altitude areas of West Bengal Sikkim, Manipur, Tamil Nadu and Uttar Pradesh, is at present practised to cater to the needs of tourists for angling purposes. In India, the brown trout has got established in the snow-fed streams and the rainbow trout in the

spring-fed streams. With the ever increasing tourists' population in these selected areas, it has become all the more important to provide them with fish for table purposes also, as the tourists have an attraction for trout in their menu. It is a well known fact that the trout is cultured commercially for table purpose in the European countries, Japan and USA. But in our country due to the outdated nature of the trout hatcheries and farms, lack of proper technical expertise in the field of trout rearing, trout feed preparation and culture activity and the absence of a fast growing strain of trout, commercialisation of trout culture was not possible in spite of a number of measures taken to improve the strain and the culture methods. In addition to the already available expertise and the facilities for trout farming, the Government have approached EEC and NORAD for technical and financial assistance for commercial trout farming in India, wherever it is possible. Since there is a lack of well trained personnel in this field, short term training course to management and field level staff involved in trout farming, is under active consideration of the Government.

COASTAL AQUACULTURE

Through the concerted research activities of the national fishery research institutes a viable technology for brackishwater aquaculture or in other words coastal aquaculture has been demonstrated to the farmers. By following the scientific aquaculture methodology standardised by these research institutes, a production of about 2,200 kg. of fish and prawn per hectare per annum could be achieved. Both at the central and state level, financial and technical support are being provided to the interested farmers to venture into the brackishwater aquaculture field.

Based on these results, brackish-water aquaculture is being extended as an 'area development programme' to benefit the small farmers from this year onwards with a total Central assistance of Rs. 500 lakhs.

For the first time they would be provided with developed brackish-water prawn/fish farms on long term lease, offered training on farming practices and provided technical and financial support for taking up aquaculture activity in the brackishwaters. About 1,500 hectares are expected to be covered under this programme benefiting about 1,000 fish farmer families in the country.

Apart from this, for design and construction of brackishwater fish farms suitable for different coastal zones in east and west coast the Government has taken steps to obtain UNDP assistance for setting up a separate Coastal Aquaculture Engineering Project. For this purpose, the Institute for Pre-Investment Survey of Fishing Harbours would be strengthened with suitable staff with technical expertise from FAO/UNDP..

ROLE OF CENTRAL AND STATE GOVERNMENTS

The central government is providing all the necessary technical and financial assistance for implementation of the Central plan projects taken up for inland fisheries development at various levels. Technical assistance is being provided for the fish pond improvement programme under the FFDA, for design and construction of fish seed hatcheries under the world bank project and the new national fish seed programme, inland fish marketing, reservoir fisheries management and coastal aquaculture. These projects are picking up momentum as far as the development activities are concerned and by the end of the

VI Plan period, the farmers are likely to reap the harvest and get benefited from these developmental schemes.

To improve the statistical base in the States for collection and processing of inland fisheries statistics, during the VI Five Year Plan, a central sector programme has been introduced for methodology development and reinforcement of the statistical organisations at the state/union territory level. By the implementation of this scheme the methodology concepts and definitions for collecting inland fishery statistics would be standardised. This system will cover the riverine, lacustrine and brackishwater areas. This scheme on completion would give the guidelines and the relevant required data on streamlining the inland fisheries activity and the inland production in different States/UTs.

The State Governments have also taken up a number of possible steps in spreading freshwater aquaculture to rural areas through state-level FFDAs as in the case of Tamil Nadu and Uttar Pradesh, fish seed production programmes and information/extension programmes, in addition to regular rural fishery demonstration schemes, seed collection, stocking of provincial waters, riverine and reservoir fisheries, etc.

In general, aquaculture development in small water bodies such as tanks and ponds, large bodies such as lakes and reservoirs, in upland waters for commercial trout culture, coastal aquaculture and the integrated farming practices — is in progress through a number of central, state and externally assisted programmes, not only to make the aquaculture activity popular as that of agriculture among rural population but also

to cover the vast un-utilised resources for fishery development in increasing fish production, rural

employment opportunities and improving the living conditions of the fish farmers.

MARKET TRENDS

Japanese market continued to be vibrant. There had been an improvement in export prices. However, although yen has been gaining strength, there appears

to be some likelihood of downward movement in export prices in the next month. The following were the prevailing prices in the middle of January 1983.

JAPAN

Type	Count Range	Price Range Per Kg. in US \$
HL WHITE FLOWER	8/12-71/90	16.50 - 4.90
HL TIGER	11/15-16/20	16.30 - 16.20
HL BROWN	16/20-91/100	14.90 - 3.40
PUD	20/40-100/200	7.20 - 4.50
	200/300	3.40 - 3.60
	300/500	2.40 - 2.75
	BROKEN	1.70 - 1.80

U.S.A.

Type	Count Range	Price Range Per Lb. in US \$
PUD	130/200-300/500	2.05 - 1.35
	BROKEN	0.90

Frozen cuttle fish of 2-5 count commanded a price of US \$ 4 per kg. to Japan. Pomfret export to Gulf fetched a price of about US \$ 2.50 per kg.

RAW MATERIAL PRICES

At Visakhapatnam, HL tiger and white from trawlers commanded price reaching a level of Rs. 140/- and Rs. 128/- respectively per kg. For browns the price level reached was Rs. 78 - per kg

In the case of mechanised boats, the price for HL tiger and white was Rs. 117/- per kg. and for browns it was Rs. 77/- per kg.

At Kakinada HL tiger and white fetched price of Rs. 82 - per kg. and browns Rs. 55/- per kg. Poovalan commanded a price of Rs. 6.50 to Rs. 7/- per kg.

At Astarang HL tiger and white were sold at Rs. 100 - per kg. and browns at Rs. 55 - per kg

FISH FARMING

A book on 'Fish Farming' written by Mr. S. J. Singh, D.F.Sc., Fisheries Development Officer, Hissar (Haryana) has recently been published by M/s Savita Publishers 34/16-A25, Rishi Dayanand; Model Town, Hissar (Haryana). The book has been published in two parts. Part-I deals with cultivable species and common diseases and Part-II is devoted to fish culture techniques.

In Part-I the author has dealt with the criteria for the selection of cultivable species, followed by the salient aspects of various cultivable species. These include the Indian major carps and exotic carps i.e., the grass carp, silver carp and common carp. The various diseases affecting fish have also been detailed in this volume.

In Part-II the author has explained the technique of induced breeding of carps in considerable detail, followed by the technique of fish culture in ponds. Nursery, rearing and stocking pond management have been described in detail. The author has also included a chapter on plankton identification and another chapter on water analysis.

The narration is simple. There are illustrations in respect of induced breeding and culture stages. Drawings of various zoo planktonic and phytoplanktonic organisms have also been given. Photographs of various types of cultivable species have been presented,

Fish farms inclusive of hatcheries are becoming popular in the

country. The inclusion of hatchery in a fish farm will improve the efficiency of farm operation considerably. The additional investment on account of the inclusion of a hatchery is reasonable. Mr. Singh could have probably included this latest concept in his book.

The author has referred to the technique of composite culture in some places and referred to the same as polyculture at other places. The term 'polyculture' is used to refer to the culture of a combination of species consisting of freshwater and brackishwater fish species. As the contents do not refer to the culture of brackishwater species, Mr. Singh must have had in his mind composite culture only, in this connection.

At page-27 of Part-II, the author has referred to a stocking rate of 3.5 lakhs fingerlings per hectare. This is an extraordinarily high stocking rate. At another place on

the same page, he has however referred to a stocking rate of 75,000, presumably, per ha.

While giving particulars of the break-up of the proportionate area for nursery, rearing, stocking and brood ponds for a 50 ha. farm, the author has not mentioned the minimum economical size of a farm. A mention of this could have been a good guiding factor for the prospective farmers. A sketch of a farm lay out in the book would have been useful.

There are a large number of spelling mistakes. These could have been avoided.

The publication however contains all basic information relating to fish seed production, various types of cultivable species and also about fish culture. It will serve the purpose of a useful guide to beginners who intend to take to fish farming. It will also be useful to students taking up courses in fish culture.

OCEAN POLICY STATEMENT

The Department of Ocean Development, Government of India, has recently announced the National Ocean Policy in a Statement. The Statement is reproduced below:

The oceans are known to be our last frontiers. Our long coast and the sense of adventure of our ancestors fostered a great maritime tradition, The Indian Ocean which washes our shores provides opportu-

nities which need to be utilised. For success in ocean development, the entire nation should be permeated by the spirit of enterprise and the desire to explore the frontiers of knowledge. Our experience in other fields of scientific endeavour will help our efforts in ocean development. What is necessary is a policy and structure to facilitate a dynamic thrust keeping in view developments in other parts of the world.

The adoption, by an overwhelming majority of nations of the convention of the UN Conference on the Law of the Seas has established a new international order for the oceans. This extends the economic jurisdiction of coastal states to an area ranging from 200 to 350 miles from the coastline. According to this regime, nearly 2 million square kilometers of area, or very nearly two-thirds of the land mass has come under India's national jurisdiction. In this area, the exclusive right to utilise living and non-living resources vests with the nation. Besides, India has been recognised as a 'Pioneer Investor' in ocean mining. This gives India the exclusive right to operate in an area of upto 150 thousand square kilometers in the high seas for the recovery and processing of polymetallic nodules.

For ages, the sea has enabled our people to sail to near and distant lands and has been a source of livelihood to large numbers of people. Even now Indian public and private enterprises do use ocean resources. The country is producing significant quantities of fish and hydrocarbons from the sea and much scientific work has been done in collecting basic knowledge and information about the sea and sea bed and in surveying, charting and exploiting it. Progress has also been made in construction and development of offshore structures.

The vastness, complexity and uncertainty of the ocean environment calls for a coordinated, centralised and highly sophisticated development response. This should be based on adequate knowledge marine space (sea-bed, water and air columns included) as a fundamental prerequisite to the control, management and utilisation of the rich and varied natural resources available in the sea. In addition to basic knowledge to determine the potentialities in-

herent in the Indian sea-space, we have to develop appropriate technologies to harness these resources. A supporting infrastructure has to be built. Effective systems of management and control of the entire set up are also necessary.

We need to map living resources, prepare an inventory of commercially exploitable fauna and to map and assess the availability of minerals from the deep sea. The supporting infrastructure and incentives required are research vessels of different types, manpower, well-laid out programmes of resource exploitation, advanced technology and everything necessary to promote the growth of ocean technology. In the management sector, the high seas and the Exclusive Economic Zone (EEZ) upto 320 kilometers have to be looked into for the exploitation of the wealth occurring therein.

The main thrust should be on the optimal utilisation of living resources like fish and sea weeds, exploitation of non-living resources such as hydrocarbons and heavy placer deposits, harnessing of renewable resource of ocean energy from waves, temperature differences in the water column, tidal heights and salinity gradients and the collection and processing of polymetallic nodules from the deep sea.

Marine development is linked with scientific and technological achievements in other areas. Hence while we develop basic marine science and technology, i.e. technology for marine environment, our technological advances have to be geared to the utilisation and preservation of the marine environment. The extension of national frontiers by an area of 2 million square kilometers of ocean space and the consequent access to new sources of energy, minerals and food, requires great strides in ocean

engineering, specially in those relating to structures, materials, instrumentation, submarines and systems of propulsion of ships. The exploitation of natural food resources such as fish and sea weeds, and the generation of additional food resources by cultivation, also need scientific methods of aquaculture and mariculture. To survey and predict the ocean environment, the main tasks necessary are seafloor mapping, charting, geodesy, ocean dynamics, currents, waves, cyclones, marine fauna, chemistry and physics of the oceans and seabed mineral mapping, delineation and assessment. Research in all these areas must examine the various processes and their origins so as to have a fundamental, understanding, ensuring predictive capabilities. Marine science and technology has also to look beyond the current state-of-the-art to achieve major technologies break-throughs in the future.

Besides research and development in basic sciences, we should survey the deeper part of the ocean. Similarly in the deep sea, detailed survey and sampling in the regions of EEZ and the adjacent ocean will be necessary to locate and evaluate the rich and economically viable deposits of polymetallic nodules, heavy metals, fossil placers and phosphorite deposits. The gathering of data from surveys should be coordinated and a cost-effective system of integrated surveys established.

Much more needs to be done for the development of indigenous technology for the exploitation of fish from deeper waters. This also means setting up of infrastructure facilities and services to operate large-sized fishing vessels.

An important component of the development programme should be the acquisition of technology. To be self-reliant, such technologies

ould have to be largely developed, tested and operated indigenously. Technologies relating to instrumentation, diving systems, positioning and position maintenance, materials development, oceanic data collecting devices, anti-erosion capabilities, submersibles, energy and energy-saving devices are priority items. Several new technologies will have to be commercialised and made cost-effective.

Infrastructural support forms an essential prerequisite for ocean development. The variegated infrastructure already available in the country will have to be appropriately augmented, and more particularly in basic supporting facilities like safety and rescue at sea, navigational chains, communication net-works, development of appropriate maps and charts etc. Infrastructural support for providing a complete and reliable information system through a net-work of data centres on marine resources, processing and marketing systems, advanced technologies and financial assistance would also be necessary. This requires a broadening and strengthening of available infrastructural facilities.

Provisions of adequate ports and harbours, ship-building and ship-repair facilities will be needed in addition to adequate skilled manpower in various sectors of development.

Surveillance and conservation of the marine environment and its resources call for an integrated legal framework and its concomitant enforcement. Several laws have already been promulgated regarding the maritime zone, fisheries etc.

The Coast Guard Organisation looks after the enforcement aspects of several of these legislative measures. The coordinating mechanisms of the overall structure of legislation will have to be

suitably strengthened under the aegis of the Department of Ocean Development.

In the light of this, we must have a data base to co-ordinate efforts, in ocean science and technology, all the more necessary because of the rapid growth of information. A centralised data system will be set up by the Department of Ocean Development with a proper mechanism for collection, collation and dissemination of information acquired both indigenously and from foreign sources.

The creation of a self-reliant technological base puts a heavy demand on fully trained personnel. The training of skilled manpower is to be adequately planned. Young scientists, technologists and engineers will be encouraged to participate in the programme of ocean development and steps will be taken to induce Indian scientists

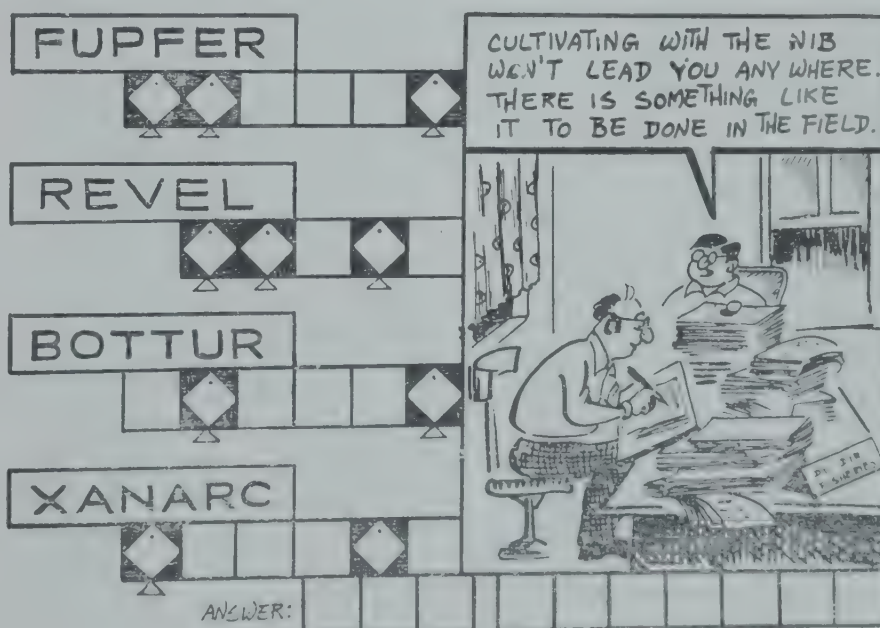
from within the country and abroad to participate in it.

Existing agencies will have to be appropriately strengthened to meet the demands of this growing challenge. The Department of Ocean Development will function in conjunction with other concerned agencies as a focal point to promote institutional capability in areas where significant work is lacking. The complex programme that ocean development entails will require well-designed management and institutional extension of the Department of Ocean Development with sufficient power vis-a-vis other agencies to help proper and speedy ocean development, which enables India to be in the forefront of the International effort. This would also mean close cooperation with both developing and developed countries in a spirit of understanding of the concept that the oceans are a common heritage of humankind.

FISHERMEN'S JUMBLE

These words are as unsorted as a fish haul. Restore them to the correct order, with each letter to a square. After this, arrive at

the answer by adjusting the letters in the 'fishes', deriving clue from the sketch alongside. Answer on p. 37.



NCDC's Assistance to Fisheries Coops

The National Cooperative Development Corporation took the responsibility of development of fisheries cooperatives in the year 1974. In pursuance of its responsibilities, the Corporation formulated a scheme to plan, promote and finance programmes for the development of fisheries cooperatives. It is a comprehensive scheme offering financial assistance for a variety of economic activities to be taken up by fisheries cooperatives. The assistance is made available in the shape of share capital and also financial assistance for various inputs. Financial help is also extended to federations for the establishment of technical and promotional cells. 100% subsidy is also made available to the cooperatives for undertaking feasibility studies for the establishment of processing units.

Assistance is provided by the Corporation for fisheries cooperatives for the development of inland and marine fisheries and for the development of infrastructural facilities. Such assistance is provided to meet the share capital requirements of the cooperatives for their marketing, supply and distribution activities. Assistance is also made available for purchase of transport vehicles including refrigerated and insulated vans and for the development of fish ponds/farms, for the establishment of processing units including ice plant, cold storages, fish meal plants, oil extraction units, canning units, service/repair centres for mechanised boats and other equipment, boat building yards, purchase of boats, nets and

other fishery requisites, equipments etc. and for construction of godowns and setting up of retail booths.

Assistance is extended by NCDC through the state governments. The funds made available to the state governments will be passed on by the later to the societies concerned.

PRODUCTION AND MARKETING

The quantum of loan assistance towards production and marketing depends on the requirement of the respective applicants. So far as assistance by way of share capital is concerned, the funds made available by the NCDC will be passed on by the state governments concerned through state/regional, central, primary level fishermen's cooperatives for marketing, supply and distribution (including supply of fry and fingerlings, fertilisers, feed etc) as clean or refundable share capital without any condition regarding minimum rate of dividend or interest. This norm is applicable to societies both in under-developed as well as developed states. The assistance from the corporation is subject to the condition that the state government provides suitable subsidy to the societies concerned towards cost of managerial staff etc. The assistance is released on approval of the proposal. Further assistance is provided if the society raises matching share capital from its members to the extent of at least 5% of earlier share capital provided by the government under the scheme.

PURCHASE OF SURFACE TRANSPORT VEHICLES

NCDC provides assistance for the purchase of fish transport vehicles (refrigerated insulated vans) by fisheries cooperatives. The Corporation provides 50% of the cost as loan and also gives 25% of the cost as subsidy. The pattern is applicable to fisheries cooperatives both in underdeveloped and developed states and union territories. The loan is repayable in 10 years. The loan/subsidy is released on approval of the proposal, placing of orders for the vehicles and also after the state government releases 25% of the cost as its share as subsidy.

DEVELOPMENT OF FISH CULTURE

The Corporation provides 80% of the cost as loan for the development of fish culture in tanks, ponds or fish farms. This assistance is also available for the establishment of seed farms including hatchery units and dry bundh breeding units, 80% of the cost is given as loan by the corporation. Thereupon the state government is expected to give 100% as loan/share capital and also provide subsidy as may be decided. Moratorium is allowed for the first three years for the repayment of loan in respect of fish culture. 25% of the loan is released in the first instance as ways and means advance on approval of the proposal and balance will be released on progress in expenditure. The assistance will be available in cases where the units are owned by the society or its members or when the same are taken on lease for 10 years or more.

PROCESSING UNITS

Processing units including plants, freezing plants, cold storages, fish curing yards, mechanical drying units, fish meal plants, oil extraction units, canning units etc.

service/repair centres for mechanised boats and other equipment. boat building yards, purchase of boats, nets and other fishery requisites/ equipment, establishment of marketing units, peeling sheds for export of prawns and for purchase of oxygen cylinders are eligible for loan and subsidy. The corporation extends a loan of 60% of the cost and also a subsidy of 20% to the state government. The state government, in turn, will provide 55% of the cost as loan. 25% as share capital and 20% as subsidy. The loan is repayable in ten years.

The Corporation has prescribed a proforma in which the fisheries cooperatives have to furnish various particulars for obtaining financial assistance. This form can be obtained either from the Corporation directly or from one of the offices of the state fisheries departments. The address of the Corporation is as follows:

National Cooperative
Development Corporation
4, Siri Institutional Area
Hauz Khas
NEW DELHI-110 016.

Answer Fish

Q. Do you subscribe to the view that, in India deep sea fishing line is the last refuge of a person?

V. K. Rao
Kakinada

A. In India, by tradition, fishing happened to be the most isolated of all professions. It is said that 'in olden day' soldiers of defeated armies, left behind along the coast, took to fishing for a livelihood, as, for want land and other resources, they could not take to agriculture.

(Contd. on next page)

World Fishing Fleet U.S.S.R. on Top

According to Lloyd's Register of Shipping, the world fishing fleet of over 100 GRT, ending 31 December 1981, consisted of 20,937 fishing vessels with a gross tonnage of nearly 9.27 million, U.S.S.R. is at the top with 3694 vessels with a gross tonnage of 3.69 million, constituting nearly 40% of the world's gross tonnage of fishing vessels. Next to U.S.S.R.

came Japan with 2900 vessels with a gross tonnage of 0.912 million, followed by U.S.A. (2741 vessels with a GRT of 0.541 million), Spain (1696 vessels with a GRT of 0.528 million) South Korea (848 vessels with a GRT of 0.304 million) and Poland (341 vessels with a GRT of 0.265 million). The following table gives nation-wise particulars.

WORLD FISHING FLEET (ABOVE 100 GRT)

Country	Fishing Vessels (Inc. Factory Trawlers)	
	No.	Tons Gross
ALBANIA	2	300
ALGERIA	22	2,511
ANGOLA	11	3,101
ANTIGUA	1	263
ARGENTINA	155	86,397
AUSTRALIA	194	33,777
BAHAMAS	15	2,785
BAHRAIN	6	653
BANGLADESH	17	2,741
BARBADOS	30	3,658
BELGIUM	96	15,714
BENIN, PEOPLE'S REP. OF	9	1,103
BERMUDA	6	2,778
BOLIVIA	..	..
BRAZIL	68	12,302
BRITISH VIRGIN ISLANDS	2	295
BRUNEI	..	..
BULGARIA	33	75,993
BURMA	24	4,532
CAMEROON	36	6,801
CANADA	508	152,536
CAPE VERDE REPUBLIC	3	1,083
GAYMAN ISLANDS	50	21,515
CHILE	81	35,775
CHINA, PEOPLE'S REP. OF	39	10,362
TAIWAN, PROVINCE OF	259	77,339
COLOMBIA	9	1,952
CONGO	14	7,186
COMORO	..	..
COSTA RICA	11	6,258
CUBA	264	172,663

(Contd. on next page)

Country	Fishing Vessels (Inc. Factory Trawlers)	
	No.	Tons Gross
CYPRUS	8	4,295
CZECHOSLOVAKIA	..	..
DENMARK	347	75,366
DJIBOUTI	..	..
DOMINICAN REP.	..	..
ECUADOR	46	13,642
EGYPT	6	8,728
EL SALVADOR	5	2,622
EQUATORIAL GUINEA	..	..
ETHIOPIA	3	327
FAROE ISLANDS	142	47,407
FALK LAND ISLANDS	..	..
FIJI	4	479
FINLAND	17	3,050
FRANCE	493	157,560
GABON	8	1,108
GAMBIA	..	..
GERMAN DEMOCRATIC REP.	159	110,418
GERMANY. FEDERAL REP. OF	126	103,814
GHANA	76	56,279
GIBRALTAR	..	..
GREECE	94	39,112
GRENADA	..	..
GUATEMALA	3	377
GUINEA	3	1,451
GUINEA-BISSAU	2	285
GUYANA	35	3,754
HAITI	4	1,283
HONDURAS	23	5,284
HONG KONG	7	1,781
HUNGARY	..	..
ICELAND	309	92,883
INDIA	44	7,740
INDONESIA	148	29,620
IRAN	22	4,222
IRAQ	17	19,408
IRISH REP.	64	11,033
ISRAEL	2	2,010
ITALY	245	78,006
IVORY COAST	40	14,092
JAMAICA	4	785
JAPAN	2,900	911,772
JORDAN	..	..
KAMPUCHEA	..	..
KENYA	5	1,144
KARIBATI	1	121
KOREA (NORTH)	2	2,867
KOREA (SOUTH)	848	303,823
KUWAIT	70	9,925
LEBANON	5	1,004
LIBERIA	8	897

(Contd. on p. 31)

(Contd. from p. 28)

In the past three decades, the sea fishing as a profession has gained respectability, consequent to the introduction small mechanised boats and trawlers. Industrialists in general, however, do not give priority to fishing industry for investments. This is because of the risks involved and the tremendous pre-operative work one has to do to enter the line. To them it is much easier to set up landbased industries securing the required financial assistance from Institutions and permissions from the ministry of industrial development.

It appears that marine fishing industry, by and large, attracts ambitious entrepreneurs with limited financial backing. Those with adequate financial resources do not seem to think of this line. The ambitious entrepreneurs probably feel that, with limited funds they can work on a marine fisheries project. But, as they gain experience in pre-operative work, they find that to get a place in the industry is extremely difficult. Apart from the occasional hard and irresponsible attitudes from government, financial constraints to small entrepreneurs prove to be overwhelming.

Larger houses will have the money to invest in the fishing industry, but only a few of them show a guarded interest. They do not want to invest heavily and would like to get loans from SDPC. Government, however, are against giving loans from SDPC to larger houses for acquiring vessels.

Several entrepreneurs complain that the kings in Krishibhavan take a long time to clear their applications. At the same time those in Krishibhavan feel that the entrepreneurs actually cause all the

headaches and leave so many aspects uncovered, leading to delays,

In point of fact, it appears that neither the government nor the industry is to be blamed. The industry at present attracts mostly only those with marginal means but with plenty of ambition. For them fishing industry is perhaps the last refuge to translate their ambition to succeed in life into a reality.

The industry will cease to be the last refuge of entrepreneurs, if they understand the seriousness of the government in the exploitation of the fisheries of our EEZ. Once the government entrusts the work relating to the development of the activity to top men with professional knowledge and attachment to the sector, the pace of progress will gain momentum.

Quay Chronicle

VISAKHAPATNAM:

There has been a reduction in shrimp catch levels. While trawlers landed around 3½ tonnes of HL Shrimp per voyage, the mechanised boats landed 5-10 kg. per boat in a two day voyage. A substantial number of mechanised fishing boats have left for Astarang as fishing was reported to be good in that area. Half of the trawler catches consisted of whites and tigers, remaining being browns. The white and tiger component of mechanised boat catches also was on the high side. In regard to raw material prices, tigers commanded a price range from Rs. 135-140, whites Rs. 120-128 and browns Rs. 75-78 per kg., so far as trawler catches were concerned. Regarding mechanised boats, tigers and whites together commanded a price of Rs. 117/- per kg. and browns Rs. 77/- per kg.

(Contd. on p. 32)

Country	Fishing Vessels (Inc. Factory Trawlers)	
	No.	Tons Gross
LIBYA	35	6,328
MADAGASCAR	22	3,196
MALAWI	..	..
MALAYSIA	3	440
MALDIVE ISLANDS	3	1,602
MALTA	2	318
MAURITANIA	9	3,316
MAURITIUS	10	3,346
MEXICO	277	60,709
MONACO	..	..
MONTSERRAT	..	..
MOROCCO	88	28,781
MOZAMBIQUE PEOPLE'S REP. OF	61	10,867
NAURU	2	1,896
NETHER LANDS	406	97,745
NEWZEALAND	36	8,755
NICARAGUA	13	1,540
NIGERIA	43	9,790
NORWAY	657	227,083
OMAN	1	236
PAKISTAN	2	398
PANAMA	372	145,493
PAPUA NEW GUINEA	15	2,136
PARAGUAY	..	..
PERU	591	132,790
PHILIPPINES	198	49,283
POLAND	341	265,353
PORTUGAL	175	127,361
QATAR	3	346
ROMANIA	42	120,253
SAINT HELLENA	..	..
SAINT KITTS-NEVIS	..	..
SAINT LUCIA	1	105
SAINT VINCENT	1	492
SAO TOM & PRINCIPE	1	463
SAUDI ARABIA	2	364
SENEGAL	95	21,847
SEYCHELLES	4	1,176
SIERRA LEONE	1	130
SINGAPORE	14	3,426
SOLOMON ISLANDS	2	335
SOMALI REPUBLIC	9	1,089
SOUTH AFRICA	176	74,183
SPAIN	1,696	528,443
SRILANKA	11	3,039
SUDAN	..	..
SURINAM	7	1,260
SWEDEN	80	16,416
SWITZERLAND	..	..
SYRIA	..	..
TANZANIA	2	614

(Contd. on p. 32)

Country	Fishing Vessels (Inc. Factory Trawlers)	
	No.	Tons Gross
THAILAND	5	1,134
TOGO	3	454
TONGA	2	289
TRINIDAD & TOBAGO	20	2,845
TUNISIA	4	654
TURKEY	5	2,095
TURKS & CAICOS ISLANDS	1	124
TUVALU	..	..
U.S.S.R.	3,694	3,691,427
UNITED ARAB EMIRATES	1	150
UNITED KINGDOM	473	143,752
U.S.A.	2,741	540,909
URUGUAY	39	11,497
VANUATU	..	..
VENEZUELA	62	16,662
VIETNAM	24	5,132
WESTERN SAMOA	1	213
YEMEN ARAB REPUBLIC	..	..
YEMEN, PEOPLE'S DEM. REP. OF	21	6,428
YUGOSLAVIA	8	2,015
ZAIRE	14	4,793
		
WORD TOTAL :	20,937	9,265,473
		

(Contd. from p. 31)

There was an additional of one 54 ft. long wooden trawler to the fishing fleet operating from Visakhapatnam. This vessel, namely, MFT.FATIMA is owned by Capt. Sayeed who is a skipper himself with a long experience on larger trawlers. The vessel was brought by Capt. Sayeed from Mangalore where it was built. In her maiden voyage the vessel brought a catch of 550 kg.

There were no unruly demonstrations by crew at fishing harbour. The retrenched crew members of Tata Fisheries Karmachari Union who were arrested earlier, came out on bail.

It is stated that they took permission from the court to stage a half an hour demonstration every day in front of Tata's office between 12-00 to 12-30 hours. During this half an hour the crew members not only voice their demands, but also break into song

and verse against the management. They use filthy language which is condemned by all around.

The word that went round was that during the recent elections to the Andhra Pradesh Legislative Assembly, a large number of fishermen voted for Telugu Desam. The reason given for this change in their traditional support to Cong-I was that the leaders of Cong-I never bothered to solve their problems such as getting them land in fishing harbour for drying their fish, subsidies and exemption of sales tax on diesel oil for mechanised boats, etc. The fishermen say that Telugu Desam has promised them all help.

The local fishermen's organisations who have been demanding 50% employment opportunities for local fishermen on trawlers, now intend to intensify their demands from March 1983 if there is no progress in the meanwhile. They intend to stage public demonstrations and

processions and plan a movement to prevent the sailing of trawlers from fishing harbour.

The first batch of trainees from CIPNET, Visakhapatnam, completed their course. Candidates for the second batch have now been recruited.

A few trawlers chartered by M/s. Navbharat Ferro Alloys Limited were awaiting entry into the harbour. They had since obtained all clearances and left one voyage. Likewise two trawlers stated to have been chartered by another company were also awaiting in the stream. They are likely to enter into fishing harbour as soon as the requisite permissions are received.

ASTARANG

A large number of mechanised boats from Andhra Pradesh are now at Astarang. There was a problem earlier in the disposal of the shrimp catches landed by the boats as the processors were not allowed by the paradeep boat owners association to collect the raw material at Astarang. Now the middlemen who contracted the boats were collecting the material and delivering at the processing plants through matador vans. Fishing was stated to be brisk at this place. Tigers and Whites commanded a price of Rs. 120/- per kg. and browns Rs. 55/- per kg.

PARADEEP:

Mechanised boats have been conducting two day voyage. The landings per boat per voyage were around 50-70 kg. of which 20-30 kg. were whites and tigers.

KAKINADA:

Fishing results were somewhat at a lower level, each mechanised boat bringing about 5-10 kg. of shrimp (browns) per day. Average landings for poovalan per boat were 50-100 kg.

OTHER CENTRES:

Shrimp landings at Mandapam/Cuddalore were average.

Tamilnadu Ordinance to Regulate Marine Fishing

V. Krishnaswami, Our Madras Representative

The Tamil Nadu Government had promulgated an ordinance on January 6, 1982 entitled "Tamilnadu Maritime Regulation Ordinance" to prevent clashes between operators of mechanised fishing vessels and traditional fishermen and to regulate operation of fishing vessels in the sea along the whole or part of the coast line of the State. A bill to replace the ordinance has since been passed by the state assembly.

The traditional fishermen have been apprehensive of danger to their lives and considerable financial loss on account of the free movement of mechanised fishing vessels.

The ordinance at one place states: 'Disputes between the operators of fishing vessels and the traditional fishermen regarding the area of their fishing operations occur frequently in this State and these disputes are more pronounced in certain areas of intensive fishing in coastal districts of Tamilnadu, especially during the prawn fishing seasons. The main objections raised by the traditional fishermen are that apart from being deprived of their legitimate prawn and other fish catches from the coastal water hitherto enjoyed by them, due to competition from the more efficient fishing, their costly nets are also frequently damaged by the trawling operations of the fishing vessels'.

REGULATORY MEASURES

Under the ordinance all catamarans and other country craft

are permitted to conduct fishing only upto 3 nautical miles from the coastline and mechanised boats are allowed to conduct fishing beyond this limit. The boats should leave their berthing place at fishing harbour by 6 a.m. and report back before 9 p.m. on the same day. They should leave for fishing on the next day at 6 a.m. only. All deep sea fishing vessels are exempted from the above mentioned regulations. All vessels should be registered with the fisheries department and licences taken from the fisheries department. All regional assistant directors of fisheries are designated as the authorised officers to implement the ordinance.

MARINE FISHING ADJUDICATING OFFICERS

The Government has named the Regional Deputy Directors of Fisheries at Madras, Nagapattinam, Madurai and Tuticorin as adjudicating officers under the marine fishing regulation ordinance promulgated on Jan. 6. Their respective jurisdiction will be Madras, Chengalpattu and South Arcot districts (Madras); Thanjavur and Pudukkottai districts (Nagapattinam); Ramanathapuram district (Madras) and Tirunelveli and Kanyakumari districts (Tuticorin).

The appellate authority under the ordinance will be the Joint Director of Fisheries. brackishwater fish farm, Santhome, for Madras,

Chengalpattu and South Arcot districts, Joint Director, Project office, Killai, Directorate of Fisheries, Madras, for the districts of Thanjavur and Pudukkottai, Joint Director, Research and Extension, for Ramanathapuram, and Joint Director, fish seed production, for the districts of Tirunelveli and Kanyakumari.

The authorised officer under the ordinance for the revenue districts of Madras, Chengalpattu, South Arcot, Thanjavur, Pudukkottai, Ramanathapuram, Tirunelveli and Kanyakumari will be the Regional Assistant Directors of Fisheries in the respective districts.

"Specified area" under the ordinance would mean the area in the sea along the coastline in each of these revenue districts but not beyond the territorial waters.

Tamilnadu has a long coastline of 1000 km. with a continental shelf area of about 41,412 sq. kms. It has nearly 22 lakh hectares of off-shore area in the region of 10-49 fathoms. Beyond this lies the vast expanse of deep sea, nurturing a wide variety of demersal and pelagic fishes. unexplored and unexploited by the Indian vessels. Further, the recent declaration of the Government of India establishing an Exclusive Economic Zone of 200 miles into the sea has thrown open to the State a great challenge, an opportunity for maximising marine fish production.

**SHRIMP AS FRESH AS WHEN THEY LAND
ON DECK OF OUR TRAWLERS**

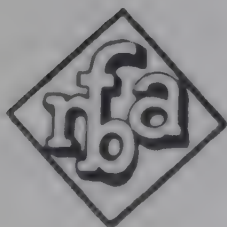
AND AS YOU WANT

**HEAD-LESS, SHELL-ON
PEELED AND DEVEINED,
PEELED AND UNDEVEINED, OR
COOKED AND FROZEN !**

**WE BELIEVE IN INTEGRATED
FISHERY ACTIVITIES. THAT IS WHY WITHIN
A SHORT TIME WE ACQUIRED SIX FISHING
VESSELS, ESTABLISHED A MODERN
MARINE PRODUCTS PROCESSING PLANT AND
ALSO SET UP A WORKSHOP OF OUR OWN**

**OUR FROZEN SHRIMP, OWING TO ITS
SEA-FRESH FIRMNESS, FLAVOUR AND TASTE
IS THE CHOICE OF SEVERAL IMPORTERS OF
SEA FOODS**

Nava Bharat Ferro Alloys Limited



MARINE PRODUCTS DIVISION

“ Manganese House ”

**Harbour Road, Visakhapatnam 530 001
Andhra Pradesh. INDIA.**

**Grams : NAFBAL, Phone : 66030 Telex : 0490-328
Regd. Office : Nava Bharat House, 6-3-654 Somajiguda
HYDERABAD 500 004 (INDIA)**

It has been estimated that the lower east coast of India (Andhra Pradesh, Tamilnadu and Pondichery) can sustain an annual fishable stock of 410,000 tonnes of demersal fishes and 270,000 tonnes of pelagic fishes. For Tamilnadu the respective figures are 328,000 tonnes and 115,000 tonnes.

A conservative estimate of the fishery potential of Tamil Nadu can be placed at around 353,000 tonnes on continental shelf (upto 200 m, depth), while the potential in the Economic Zone (320 km. from the coast) is estimated at 530,000 tonnes. The demersal fishery resources of lower southern coast of Tamilnadu are estimated to be 113,000 tonnes in Palk Bay, 80,000 tonnes in the Gulf of Mannar, and 73,000 tonnes in the Wadge Bank area.

The south-west coast of Tamilnadu (Kanyakumari district) is potentially rich in its fishery resources and its nearness to the Wadge Bank makes it an attractive base for increasing fish production. The present level of landings of prawns of 10,000 tonnes in a year can be raised by another 5,000 tonnes.

In the light of the resources position, the target for an additional production of 80,000 tonnes of marine fish for the Sixth Plan would be feasible of achievement. The additional production can be achieved (1) by increasing the operational efficiency of the traditional crafts through introduction of out-board motors, in-board motors, improved gears and introduction of improved types of canoes including fibre glass boats (2) introduction of additional mechanised boats of lengths 30', 32' and 43½' and (3) by introduction of an additional number of large fishing vessels.

The socio-economic problems in the form of clashes between the fishermen owning traditional crafts and those who have come into possession of mechanised boats, which were witnessed in increasing numbers in recent years, underscore the urgency and the need to introduce an intermediate technology by which the traditional crafts are also given the motive power in the form of in-board and out-board motors so as to increase the earnings of traditional fishermen.

According to a survey conducted in 1976, there were 30,000 catamarans and 8,000 canoes and vallams in operation in the State. It is neither possible nor is it necessary to mechanise all traditional crafts immediately due to various reasons. It may be necessary that both mechanised and non-mechanised crafts may have to co-exist although quite a large number among them will switch on to mechanised fishing progressively. However, the traditional crafts, which have been tried and found versatile for fishing activities, from early times, could continue to effectively contribute to the rural economy of the country to a considerable extent. The traditional sector, which has not so far received the attention it deserves, requires assistance to improve the efficiency of traditional boats viz catamarans and vallams. Mechanisation of such crafts requires financial support. Because of high cost of out-board and in-board engines mechanisation of traditional crafts and canoes has become very costly and is beyond the reach of any small or middle level operators.

BOATYARD MEN CHALLENGE DISCHARGE:

A writ petition questioning the discharge of over 600 employees of the boat building yards run by

the Tamil Nadu Fisheries Development Corporation has been admitted by Mr. Justice Sathiadhev.

Petitioners including Mr. A. Durai, General Secretary of the 'Tamil Nadu Fisheries Development Corporation, and Steam Boat Building Works Employees' Union submitted that they had been employed by the Corporation in various capacities with unbroken service of ten to twenty years. They were deputed to various boatbuilding yards in 1974 run by the corporation at Madras, Mandapam and Nagapattinam by an order of the Director of Fisheries and had continued to enjoy benefits as Government employees.

They stated that on October 20, 1982, the corporation served notice that the Government had decided to close down the boat-building yards and that the employees would be sent to the parent department.

On the same day, however, the corporation served an order on the petitioners stating that they were discharged from service. They were given a month's notice without assigning any reasons.

The petitioners contended that the corporation's action was a breach of promise and therefore illegal. The corporation, the petitioners said, had acted malafide and vengefully. They also contended that no attempt had been made to provide them with alternative employment. This was in direct violation of Article 14, 16, 309 and 311 of the Constitution and infringed the provisions of the Industrial Disputes Act.

The petitioners sought a direction to provide alternative employment to all aggrieved employees in any Government department fixing them in the scale of pay they had been drawing before their discharge.

(Contd. on next page)

SCHEME TO INTRODUCE BEACH LANDING CRAFT IN TAMILNADU

The Government of Tamilnadu has recently sanctioned a scheme under the intensive rural development programme for the introduction of 30 numbers each of beach landing fishing craft at Injambakkam, a fishing village situated 15 km. south off Madras. The fishermen acquiring the craft will be given 50% subsidy on the cost. The remaining 50% has to be obtained as loan from the co-operative banking structure which will receive funds from NABARD. The craft will be fitted with Mitsubushi Shakti engines of 8.5 horse power.

T.N.F.C. TO COMMENCE EXPORTS FROM VISAKHAPATNAM

It is understood that arrangements have reached a final stage for the commencement of exports of marine products by the Tamilnadu Fisheries Corporation from Visakhapatnam. The activity may commence in February 1983. It is learnt that the Corporation will utilise the shrimp catches from their own trawlers for processing and export. The processing operations will be under an arrangement with one of the well managed processing plants at Visakhapatnam. The same management may assist the Corporation in the export of products to reliable importers at the highest possible prices.

QDIZ

TEST YOUR KNOWLEDGE ABOUT THE FOLLOWING FISHES

1. Rudder Fish, 2. Pilot Fish,
3. Pipe Fish, 4. Paddle Fish,
5. Needle Fish, 6. Muki-Muki,
7. Devil Fish, 8. Angler Fish,
9. Frog Fish.

Answer on p. 53

Dream Dish of Oceans: Shellfish International Conference in Ireland

IRELAND is to host the second Shellfish International Conference in Dublin from April 19th-21st, 1983 at the Burlington Hotel.

Following the successful debut of the conference in the Channel Islands last year, Dublin is now set to attract the largest ever gathering of international shellfish traders.

With first-hand sales of shellfish running well the international trade is growing at a fast pace. In line with this growth, communication between those who buy and sell shellfish products is getting wider and Dublin will be where it all comes together!

From the tiny mussel to the giant king crab, shellfish is a delicacy in constant demand around the tables of the world. But, it is a product which demands great handling skills and high quality standards. As a result it gained a reputation as the 'dream dish of the oceans'.

The conference will be addressed by speakers from ten leading shellfish producing countries. The topics discussed will range from new ways of marketing and promoting the products to world developments in shellfish farming.

With delegates expected from some 30 countries, the afternoon of each conference day will be given over to private business meetings and technical visits.

The conference is organised by: Highway Publications of London publishers of **FISHING NEWS INTERNATIONAL, FISHING**

NEWS and FISH FARMING INTERNATIONAL and is sponsored by the Irish Sea Fisheries Board.

Setting the scene for the conference sessions will be a leading figure in international fisheries, W. 'Phil' Appleyard. In his keynote speech 'World shellfish trade . . the changing scene', he will identify the new areas of production in the world which are making, or are set to make, a big impact on the balance of trade.

From Malaysia, Dr. Wolfgang Krone, who heads the United Nations INFOFISH service, which provides marketing and advisory services for fish products in the Asia Pacific region, will present a paper entitled "The impact of developing countries on world shellfish trade".

A close look at a new and exciting area of fresh seafood presentation, achieved through controlled Atmosphere Packaging (CAP), will be taken by John Cawley, Chilled Seafoods Sales Manager at Young's Seafoods Ltd.

This U.K. based company with a big international reputation has, after extensive development work, gone into full scale production of CAP products supplying some 70 supermarket outlets. This concept of pre-packed fresh fish kept in chilled cabinets has met with a remarkable response.

The insatiable demand by Spain for shellfish has made this country an important target area

or exporters. Philippe Chabaud, who heads up a leading group of Spanish wholesalers, in Vigo, will present a study of the future market requirement by Spain, which is an applicant nation to the E.E.C.

From the U.S.A., Henry Branstetter, leading shellfish marketing and procurement expert, will review developments in his country and also some areas of Latin America.

Representing the host country and the sponsors will be Dr. Tony Meaney, the chief-executive of the Irish Sea Fisheries Board. He will be tracing the Development of Irish Shellfish Fisheries".

Also from Ireland will be one of the country's leading processors, Jim Lett, who has built up a big reputation on the international shellfish scene with products ranging from mussels to scampi. He will chair the session on marketing and promotion.

The conference will also hear from a man who played a leading role in the development of the fishing industry in New Zealand. Jim Campbell, former general manager of the New Zealand Fishing Industry Board has been

an active force in helping his country consistently push up the exports of seafood, especially since the introduction of the 200-mile limits. These reached record levels in 1980 and 1981. He has recently been involved in getting the farming of New Zealand mussel *Perna canaliculus* on a commercial basis.

One of the fastest growing areas in seafood trade in Europe has been through mobile outlets. These have brought fresh fish to inland areas — right on the consumers doorstep! A leading pioneer in this field in the U.K. has been Mr. F. Hennessy of Fairholme Engineering Ltd., which produces custom-built cabins for the job. Working closely with Fresh Sea Foods (Barry) Ltd, of Glamorgan, he has helped this company become the single biggest retail outlet for shellfish in the U.K. He will be outlining to the conference the benefits of this kind of operation and the cost of getting on the road.

The impact of shellfish culture is now being felt on markets all around the world. Leading off a session on this important topic will be Peter Hjul, Editor of "Fish Farming International", while from Holland, Lourens Westbrook will look at the future for mussel culture

as well as presenting a background of the Dutch cockle and oyster industry,

To round off the conference, a lively debate is expected from a three-man panel dealing with the important topic of quality control. This will cover the handling of shellfish from the point at which it is captured, through the processing stage and when it reaches the market.

The quality control session will be led off by: Dr. Eric Edwards (Director of Shellfish Association of Great Britain); Joe Summers (Product Technologist, Irish Sea Fisheries Board) and Gerald Watkin (Chief Inspector Fishmonger's Company, U.K.).

Registration fee for the conference is £ 175 (£ 150 if booked before January 20th). Registrations can be made through Cunard Crusader World Travel Ltd., Friary House, 15 Colston Street, Bristol BS1 5AP, England. Cunard have also devised a special rate accommodation and hotel package for the conference. Further information can be obtained from Harry Barrett. Heighway Publications Ltd, 87 Blackfriars Road, London, SE1 8HB (Tel: 01 - 928 8641; Telex: 21977 SYSMAG G).

News International

RESEARCH VESSEL FOR ASEAN COUNTRIES

A proposal has been put forth by the marine biologists of Philippines for the acquisition of a research vessel jointly by Asean countries. It is suggested that the required funds amounting to US \$ 20 million may be obtained with help from certain European countries and U.S.A.

Answers to Fishermen's Jumble:

Words: PUFFER, ELVER,
TURBOT, CARANX
Solution: PEN CULTURE



NEWS WAVES



SAW FISH OF UNUSUAL SIZE LANDED BY CIFNET VESSEL

Recently, CIFNET's training vessel Skipper-II, under the command of Mr. K.S. Srinivasan, landed a huge saw fish, along with the overall catch, measuring 5.2m and weighing 970 kg. The captain said that it was a major task to haul the fish in. It is stated that the size of this fish, known as *Pristis microdon* was much larger than the recorded maximum size of 4.57 m.

* * *

POPULARISATION OF HIGH OPENING TRAWL IN GUJARAT

CIFNET, in association with the Gujarat state fisheries department and BOBP has undertaken a short term training course to train small mechanised boat fishermen of Gujarat in the operation of high opening bottom trawl. This training course comes in the wake of the successful operation of similar net from Mandapam and Tuticorin centres.

* * *

HIGH OPENING FISH TRAWL FOR LARGER VESSELS

Trials with a high opening fish trawl for vessels fitted with engine of 500-600 H.P. are now in progress under the auspices of CIFNET. The net now being tried was designed and fabricated by the fishing gear division of CIFNET. The trials conducted so far from the vessel Bluefin show that the catches are encouraging with a good quantity of quality fish.

* * *

FURTHER PROGRESS IN PEARL CULTURE

The CMFRI, Cochin, has

successfully accomplished the large scale production of pearl oyster spat under controlled conditions. This has now geared up the scope for the faster development of pearl culture in the country. Readers are aware that the Institute had already standardised the technology for the production of culture pearls. The present development now provides a comprehensive technology in the controlled production of pearls of superior quality.

NATIONAL

CIFNET'S SURVEY RESULTS OFF UPPER COROMANDEL COAST

CIFNET's training-cum-survey vessels, Skipper-II and Skipper-III have recently undertaken a survey of fisheries resources on the upper Coromandal coast, from Madras to Ramayapatnam. The work was taken up in June 1982 and is continuing. The area chosen for the survey is about 6,000 sq. km. in extent having a depth of 100 fathoms.

The survey conducted so far has shown that the shelf is comparatively narrow, 8-20 miles in extent and narrowest off Krishnapatnam and widest off Ramayapatnam. The sea bed is generally muddy and with corals around 50 fathoms depth and beyond.

The survey so far conducted has covered depths upto 50 fathoms. The results indicate that several quality fish such as pomfrets, seer, perches, carangids, lactarius, threadfin are available in substantial quantities, apart from several smaller demersal species.

CIFNET UNIT AT VIZAG WELL ON WAY TO STABILISATION

The CIFNET unit at Visakhapatnam was established on 1st October 1981. While, like any other new unit, it has its own teething troubles, the centre is getting strengthened gradually. So as to ensure the imparting of an effective training to the candidates, the trainees were taken to CIFNET, Cochin, during March-July 1982. Here they were given intensive coaching in various subjects. They were also taken to various other places of fisheries importance. The facilities by way of positioning of staff, procurement of equipment etc. at the centre have improved considerably.

The Institute, which started functioning initially in the workshop building of the slipway complex at the Visakhapatnam fishing harbour, is now located on the first floor of the administrative building of the Visakhapatnam Port Trust within the fishing harbour premises. A permanent site has been provided by the Visakhapatnam Port Trust for the construction of permanent buildings for the Institute and a hostel for the trainees. The trainees are at present accommodated in a hostel building belonging to Nehru Yuvak Kendra.

* * *

GROUP INSURANCE SCHEME FOR COOPERATIVE FISHERMEN

The Minister of State for Agriculture, Mr. R.V. Swaminathan, relinquished office recently announced that the Central Government would extend a subsidy of 50% on the annual premium paid by a group of fishermen for getting an insurance policy of Rs. 15,000/- per head. He disclosed this at the inaugural function of the 7th Advisory Committee Meeting of the Bay of Bengal Programme whose objective is to improve the economic condition of the small scale fishermen in the Bay of

Bengal region comprising of 5 countries bordering the bay. This insurance scheme, to cover groups of fishermen, is applicable only to the fishermen coming under the fold of fishermen's cooperatives.

* * *

EFP SETS UP COMPUTARISED DATA PROCESSING CENTRE

A computerised processing centre has recently been inaugurated at the Exploratory Fisheries Project, Bombay. The availability of this facility will now enable the Exploratory Fisheries Project to tabulate the results from various grounds and analyse the same and draw conclusions in regard to the potential of the various fishing grounds covered. Since this work can now be done with considerable speed, it will be possible for the EFP to disseminate the results among the various deep sea fishing enterprises much faster than at present. This will also eventually speed up the programme for the development of deep sea fishing activity in the country.

* * *

UNESCO PROJECT FOR THE STUDY OF KUTTANAD ECO-SYSTEM

It is understood that UNESCO has accorded their clearance to assist a pilot project to study the Kuttanad eco-system, sponsored by the University of Cochin. Under the proposed programme, the various concerned university departments will participate in the studies relating to, among others, ocean science and engineering, post-harvest technology and bio-technology. It is stated that the ocean-going research vessel "Sagara Kanya", expected to arrive in India under the Indo-FRG agreement soon, will be available to the University for undertaking the work.

* * *

CARP HATCHERY WITH A DIFFERENCE

The Central Inland Fisheries Research Institute,

Barrackpore has standardised a hatchery suitable for hatching eggs of major carps with pots as the main components.

The hatchery unit consists of 3 earthen pots. One of these has a capacity of 250 litres while the remaining two have a capacity of 100 litres each. The larger container has an aluminium tap at the bottom. In the lay out of the hatchery, this part is placed at the top and water flows from this to the other parts through which circulation is maintained.

This inexpensive mud-pot hatchery, costing around Rs. 50/- is well suited for adoption in rural areas. It is stated that each unit will be able to hatch upto one lakh eggs. The hatchery units of this type have been found to work successfully at various places in the country.

* * *

FISHERMEN OF GOA FIGHT FOR EXCLUSIVE ZONE

Ramponkars, the traditional fishermen of Goa have been on severe protest recently on the policies of the Rane government of Goa with regard to fishing policy.

The Ramponkars were demanding a two kilometer exclusive zone for their country craft. There has been for some time a row between the mechanised boatmen and the fishermen of country craft all over the coastal India. Some states have already demarcated the areas of fishing by both these types of fishermen.

Lack of such arrangement has been causing unrest among the Goan Ramponkars. Hence several representations were made to the government of Goa to fix a proper area of fishing for both the types of fishermen.

The recent clashes of Ramponkars with the police at the Secretariat of Goa threw the situation into a serious turn. On January 14, the police had to use tear gas on the restive fishermen in front of the Secretariat. The Ramponkars were alleged to have attacked the police with aerated water bottles and stones.

Following the clashes, 11 Ramponkars were arrested but later released by a court on personal bonds. After the release, two of the ramponkars, who were in heavy bandages around the injuries sustained by them during the clashes, were garlanded at a meeting held by All Goa Fishermen's Union. At the meeting the Goa government was accused of provoking violence. The government was also accused of ill-treatment under the lock-up to the ramponkars in the hands of the police. It is stated that the ramponkars were not given water for 18 hours.

On 17 Jan. Mr. Mathany Saldanha, leader of the All Goa Fishermen's Union was taken into preventive custody. Around 30 ramponkars were also arrested to prevent them for going in a procession to the state assembly. There was heavy police bandobust around the secretariat. While this was going on, fishermen continued to be on hunger strike at the Bhandarkar statue. Mr. Saldanha had also announced a programme of demonstrations against the 'anti-fishermen policy of the Rane government'.

* * *

NEPTUNE NOTCHES MASSIVE ORDERS

The Neptune Refrigeration Company Private Limited, Madras, for the first time in its five years of existence, bagged a massive order of eight Neptune plate freezer cabinets from M/s. Anjaneya Cold Storage; New Delhi, recently.

M/s. Allans, the parent house of Anjaneya Cold Storage has already got 6 jumbo Neptune plats freezers at Bombay and Veraval.

Neptune has supplied and installed classic freezers at Pithadiya Freezing and Cold Storage, Veraval and at Amar Cold Storage, Porbundar. Beakey Exports in Taloja employs Neptune's evaporators for frozen cold stores and chilling rooms. A specially designed BLACOIL with Horiflo blast and electronic switch will freeze six tonnes of products.

Nava Bharat Ferro Alloys at Visakhapatnam have installed two ice plants of 15 ton capacity each, two frozen storages of 100 tons each and two plate freezers of 4 tons each from Neptune/Bombay Ammonia's modern technology. Liberty Oil Mills selected Neptune for their additional 300 ton frozen storage at Madras.

The Research and Development wing of Neptune and its parent company Bombay Ammonia have been doing yeomen service in developing modern equipment in the field of refrigeration with regard to the fish storage, and freezing. The equipment that is being developed by this concern has been noted for their dust free and smooth performance. Ordinary metal is being replaced by Neptune's innovative designs of fibreglass to make the freezers anti-corrosive and hygienic. Neptune's R&D wing has also designed and perfected circulating pumps for liquid ammonia, capable of improving the refrigeration system by 15 to 20%. Two of such pumps have been supplied to CIFT, Cochin.

FIBRE GLASS FISHING BOATS FOR A.P.

Under the auspices of the FAO Bay of Bengal Programme and assisted by Swedish International Development Agency, a programme has been finalised for the introduction of fibre glass fishing boats in A.P. This step has been finalised in accordance with the recommendations of international fisheries experts engaged by the Bay of Bengal Programme.

Owing to the introduction improved types of fishing boats at Uppada in A.P. under the Bay of Bengal Programme, landings of fish are stated to have improved considerably. Compared to catches from the traditional boats, the improved type has been able to bring catches twice in extent.

* * *

NEW FISH CRATE

Mr. B. Paul of Calcutta has designed a new type of container, which is called as fish crate for packing and transportation of fish over distances. The container is made of wood or cane. The design enables the container for use in the preservation of fish in ordinary vehicles or trains for transportation. Low temperature is maintained in the container through use of a newly formulated freezing mixture. According to Mr. Paul, this container can be produced on a commercial scale at a reasonable cost, will within the reach of small scale fishermen. The importance of this container, according to the inventor is that the problems which the small fishermen face at present in disposing of their catches at low rates for want of preservation facilities can be solved substantially.

JANATA PERSONAL ACCIDENT INSURANCE FOR FISHERMEN IN LAKSHADWEEP

The janata personal accident Insurance scheme has been extended to the fishermen of the Union Territory of Lakshadweep, according to an announcement by the government of India.

The group personal accident policy involves an annual payment of Rs. 12 by each of the fishermen of which 50% would be subsidised by the government. The policy would be of the value of Rs. 15,000 payable to the beneficiary against death or permanent disability of the policy holder.

* * *

STATISTICS ON MARINE RESOURCES

The Department of Ocean Development would be requested to run a statistics cell for the marine resources, living and non living.

This was announced at the 70th Indian Science Congress held at Tirupati.

According to the announcement, the Government of India has decided to collect data on complete structure of ocean, its topography, living resources and non living resources.

Assistance would be sought from all the national and international agencies in this connection. It has been decided to develop the technology and machinery needed for achieving the objective.

* * *

P. K. R. PANIKAR RETIRES

Mr. P. K. R. Panikar, Deputy Commissioner of Fisheries, Veraval (Gujarat), retired from active Government service on 31st December 1982. Mr. Panikar served the department of Fisheries of Gujarat for more than 27 years.

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A well attended farewell function was arranged at the Fishermen Community Hall under the Presidentship of Mr. S. Madhavrao, Superintending Engineer, Fisheries Harbour Project, Veraval, Mr. Dhanjibhai Khapandi, the Fishermen Community Head attended the function as the Chief Guest. Nearly 500 fishermen, state and central government officials and fisheries trainees attended the well organised function.

Mr. Girish Vasavada, Assistant Director of Fisheries, (Training), while welcoming the outgoing officer and other guests, paid rich tributes to the services of Mr. Panikar. Mr. Vasavada told the gathering about the yeoman services rendered by Mr. Panikar in different spheres of fisheries in Gujarat. A particular reference was made to Mr. Panikar's achievements in developing the most modern Inland Fisheries Development Centre at Ukai, which has become a monument to Mr. Panikar's planning and efforts. Mr. Panikar took an active interest in the development of Adivasi fishermen of Ukai Reservoir System. As the President of Lions Club and Ukai Seva Mandal Mr. Panikar adopted two Adivasi Villages for their Integrated Fisheries Development Project. The services of Mr. Panikar will be long remembered as an architect of Integrated Fisheries Projects in Gujarat, added Mr. Vasavada.

Rich tributes were also paid by Mr. Madhavrao, Superintending Engineer, and Mr. Bhatt, Executive Engineer in Fisheries Harbour Project, Mr. K. K. Solanki Scientist-in-charge C.I.F.T., Mr. J. A. Pandya, Assistant Director of Fisheries (Project), Mr. Karsanbhai Suyani, President, Trawler's Association, Veraval and other Speakers.

Mr. K. G. Dave, Superintendent of Fisheries (Training) proposed a vote of thanks.

* * *

MAMMOTH FISHERMEN GATHERING AT VERAVAL

Swadhyaya Parivar, Veraval, organised recently a mammoth gathering of fishermen of entire Gujarat Area on 14th January 1983. The function was blessed by Mr. Pandurang Athavale, beloved older brother (Dada) of All India Swadhyaya Parivar.

About a lakh of fishermen from Umbergaon in the east to Jakhau in the west were participants in the gathering which was well organised on the shores of Somnath Temple, Veraval. It was astonishing for the common intelligentsia of the area to hear the recitation of 'SHLOKAS' from Bhagvad Gita and Vedas by the so-called un-educated and low caste fishermen.

Nearly 4000 fishing boats from all along the coast-line of Gujarat paraded in the Sea around Somnath Temple and saluted the teachings of Shri Pandurang Athavale, their spiritual mentor. Mr. Mohmad Hussein Baloch, State Minister for Fisheries also participated in the gathering.

The activities of the Swadhyaya Parivar have made deep inroads into the fishermen community of Gujarat, Maharashtra, Karnataka and Goa. Majority of the fishermen have vowed to follow a truthful path by avoiding drinking and other bad habits. Four fishing boats have been acquired as the property of the trust where the fishermen give free services by turns for the income to be used for the benefit of the weak and downtrodden.

* * *

POSSIBILITIES OF PEN CULTURE IN PULICAT LAKE

Prof. Mrs. T. Rajya Lakshmi, Head of the Department of

Fisheries Science, Andhra Pradesh Agricultural University, visited various centres of Pulicat lake recently with a view to determining the possibilities of undertaking pen culture in the lake area. It is understood that a report on the subject will be given by her which will form the basis for decisions on the subject by the state fisheries department.

During her visit she was accompanied by Mr. P. Potharaju, Deputy Director of Fisheries, Guntur and Mr. M. Bheemaraju, Asst. Director of Fisheries, Nellore.

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NATIONAL ASSOCIATION OF FISHERMEN ON FISHERY BANK

The National Association of Fishermen has proposed to the Government of India that a National Fishery Bank may be set up to provide financial assistance for the benefit of the traditional fishermen for the acquisition of fishing boats and other requisites. It was stated that this bank may also help fishermen with loans to tide over lean fishing seasons. It was pointed out that half of the foreign exchange earned from exports may be utilised towards the capital required by the bank. It was mentioned that nearly 2 lakh fishermen have agreed to become share-holders in the bank by contributing Rs. 10 each. It was believed that the setting up of the bank would wean the fishermen from taking loans from money lenders at high rates of interest.

* * *

STRANDED INDIAN FISHERMEN IN SAUDI ARABIA

Mr. K. Subramanyan, President of the National Association of Fishermen recently met Mr. B. K. Rao, Director General of Shipping

regarding the rescue of the stranded Indian fishermen in Saudi Arabia. The fishermen belonged to the fishing vessel Vaibhav said to have been washed ashore on Saudi Arabia coast, during the recent cyclone in the Arabian sea. The boat had 19 men on board. Mr. Subramanyan also urged on the ministry of external affairs to arrange for the repatriation of the crew of the vessel.

* * *

MAJOR FISH SEED FARM IN MARATHWADA

A large sized fish seed farm with an extent of 44.14 hectares is nearing completion at Aurangabad in Marathwada. This farm is located adjacent to the down stream of Paithan Dam. It is likely that an additional area of 79.86 hectares would be added to the farm soon. It is stated that the availability of 120 hectares of seed farm area as above will produce about 15 crores of fish seed to meet substantially the seed requirements of Marathwada region, which has a cultivable water area of 78,560 hectares. While the total requirement of seed is

stated to be 18 crores, at present 1.5 crores are being imported from West Bengal and about 1.5 crores are being produced locally at the farms now in operation.

The new farm will cater to the needs of 6 districts in Marathwada region. The farm is expected to better the economic condition of 10,000 fishermen in the region. A substantial number of these fishermen are members of 87 fishermen's cooperative societies. The availability of adequate seed will give a fillip to fish culture activities in the area.

The present fish production in Marathwada region is believed to be around 5000 metric tonnes. It is planned to increase this level to 15000 metric tonnes, consequent to the setting up of the farm.

In the Paithan Dam area itself there are 9 fishermen's cooperative societies with 800 members. The fish seed farm will receive water supply from Jayakwadi reservoir. The present production from this farm is 350 metric tonnes and the average income per fishermen comes to nearly Rs. 17.50 now.

The fisheries department has also started a training centre in the area. So far nearly 300 fishermen have been trained at the centre in fish culture techniques.

* * *

A P. FISHERMEN TO HAVE BRACKISHWATER FARMS

The district rural development agency of East Godavari District, Andhra Pradesh, has approved of a major scheme to provide 256 hectares of brackishwater area situated in Tallarevu Samithi, among Harijan fishermen and other fishermen at the rate of 1 hectare of water area to each of them. Another 856 hectares of brackish-water area will be allotted to educated unemployed, and private companies. Preference in allotment will be given to the former.

The agency constructed a 0.4 hectare pond at a cost of Rs. 15,000, including the cost of sluices with a view to ascertaining the likely costs. As this cost is on the high side, another way for the construction of 1 hectare ponds at a cost of Rs. 7,000 each has been found. The reduction in costs is on account of the assistance from the state Agro-industries corporation to form the peripheral funds with a bulldozer, the actual excavation coming to a depth 15-25 cm only.

The beneficiaries will be fully involved in the excavations of the ponds. No money need be invested by the fishermen. They have only to attend to the digging of ponds. The entire cost of providing the infrastructure such as supply channels will be provided by the agency, treating the cost thereof as subsidy. The educated unemployed and private companies would however have to invest funds for the purpose and the agency would assist them in securing loans from commercial banks.



FISHERMEN EXHIBITING THEIR CATCH FROM A TANK IN AURANGABAD DISTRICT IN MARATHWADA

Training in brackishwater farming will be given to the beneficiaries under Trysem scheme (training for youth for self-employment), by the Central Institute Fisheries Education and the A.P. Agricultural University at Kakinada.

Initially 35 trained Harijan fishermen who will be brought under the fold of a cooperative, will be given 1 hectare of farm area each. Common infrastructural facilities for the 35 hectare complex will be provided by the agency. The society will manage the farm with arrangements for technical assistance. More water area will be covered in a similar manner in the subsequent stages.

FAO/BOBP, who have been allotted 15 hectares of the water area in the same complex, will set up a research station with a view to evolving suitable management techniques. The farm will also serve the purpose of demonstration. It may be mentioned here that a scheme to develop brackishwater fish farms in a 8-hectare area was taken up by the agency last year close to at the point where the Vainateya Godavari and a major drain joins. The area was divided into 0.40 hectare plots and given to 20 fishermen. White and tiger shrimp are now being cultured there. It is expected that a wind mill will be installed at this centre for pumping water into ponds. This will reduce the production costs.

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PLEA FOR NON-CLOSURE OF A.P. FISHERIES CORPORATION

The A.P. Fisheries Federation has recently urged upon the government of Andhra Pradesh not to abolish the state fisheries corporation. This appeal was made to the Government as it was rumoured that the state government

was contemplating this. It was pointed out by the federation that the corporation served the cause of 40 lakhs of fishermen in the state.

This was pointed out by Mr. Y. Satyanarayana, President, A.P. Fishermen Federation, in a letter to the Chief Minister. He also mentioned therein that the corporation was no longer a sick unit and it was bound to grow stronger in the future. It may be mentioned here that in the past few years the Corporation had suffered heavy losses owing to lapses in management.

* * *

EXPANSION PROGRAMME OF A.P. FISHERIES CORPORATION

It is understood that the A.P. Fisheries Corporation is making a bid to acquire the trawlers of ITC Limited and M/s. Britannia Industries. It may be recalled that these two companies have been trying unsuccessfully to sell their trawlers for the past several

months. It is understood that the corporation had made a proposal to pay the cost of the vessels in monthly instalments. The final reaction of the companies is not yet known.

The Corporation is also engaged in chalking out a revised scheme for the introduction of diversified fish products utilising an amount off Rs. 43.70 lakhs given as grant by the Centre for the purpose long back. While this amount cannot be utilised for the construction of buildings, excavation of wells etc., it can be utilised for the manufacture of fish ham and sausage, fish kheema, fish meal and also for sun drying and salt curing of fish. It is likely that the corporation will opt for a programme of manufacturing fish kheema for sale in various urban markets. The corporation proposes in particular to tap the potential market for fish kheema in Bombay city.

INTERNATIONAL

UK DEVELOPS NEW TRAWL DESIGN FOR SMALL BOATS

The Sea Fish Industry Authority of UK has recently designed a trawl net with butter fly wings and three bridles for operation from small vessels. It is stated that this net, because of the high opening, brings improved catches. This design is not altogether a new one. Designs of this kind have been used by larger vessels. This is however a new design for small boats fitted with engines of 50-100 HP. The butter-fly wing trawl net is made of very light twine and has large meshes. These features facilitate the dragging of the net from vessels

having small H.P. The net is towed off 3 bridles, one to each net panel. The central bridles take the main strain of the trawl. This allows the meshes in the upper and lower panel to open up fully, aided by the action of the floats and weights. All these aspects enable the net to bring in higher catches. It is believed that nets of this type will be suitable for adoption all over. By modifying the lower parts of the trawl, it is possible to use them for mid-water trawling for smaller species. Efforts are being made by the Sea Fish Industry Authority to test models for pair bottom trawling as well.

JAPANESE FIRM DISCONTINUES JOINT VENTURES II MALDIVES

Nippon Kaisha Limited of Japan has withdrawn from a joint venture in fish processing etc. in Maldives. This joint venture was started four years ago and ran the only fish canning plant in Maldives located in the island of Falivara. This cannery had now been taken over by Maldives Fisheries Corporation.

Marketing of tuna is causing serious troubles to the Corporation because of the slump in the US and other markets. The Corporation is now trying to develop markets in south east asian countries such as Malaysia and Thailand.

* * *

FISH PRODUCTION FROM UGANDAN LAKES PICKING UP

During the regime of Idi Amin, production of fish from lakes in Uganda fell from 120,000 metric tonnes to 60,000 metric tonnes. Serious efforts are now being made to increase the production from the lakes. A fisheries project is now proposed to be taken up with assistance from EEC's fund for economic development. The international fund for agricultural development is also taking up a project for the supply of fishing gear and out-board motors to increase landings.

* * *

THAILAND REJECTS 'QUALITY GUARANTEE FUND'

The Japan Marine Importers Association proposed that a quality guarantee fund may be set up in Thailand. They said that such a fund would ensure guaranteeing of the quality and price of Thai marine products. The Fishing Association of Thailand has however not accepted the proposal. The Association felt that it would only benefit opportunist traders who would see the possibilities to export low quality products and make money.

BRACKISHWATER FARMING IN MALDIVES

The Fisheries Ministry of Maldives is serious considering proposals to take up tilapia and carp culture in the brackishwaters of some of the islands, with a view to providing additional means of livelihood to fishermen and providing fish for internal consumption.

* * *

JAPANESE JOINT VENTURES

Japanese firms have either set up joint ventures or provided financial assistance to 184 foreign companies in 44 countries as per the position by March 1982. The Japanese investment in these companies was of the order of US \$ 92 million. Compared to 1981 there was a reduction of 3 countries and 9 companies in respect of joint venture in 1982.

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SUBSIDISED SALE OF SARDINE CANS IN THAILAND

Under the promotional privileges granted by the Thai Board of Investment, the Overseas Food Company, Thailand, is now marketing canned sardines at cost 20% less than the market price. The cans are sold under the brand

name Zin Thai, owned by the Internal Trade Department of Thailand. The product was introduced two years ago by the Government to enable the common man to buy fish at reasonable rates and to reduce the cost of living.

* * *

PERU GETS JAPANESE LONG LINERS

The Fisheries Ministry of Peru and the Japan Tuna Trading Company entered into an agreement last September in regard to the leasing of Japanese long liners to Peruvian fishing companies. Three Peruvian fishing companies have been allowed by the government to obtain on lease a maximum of 5 nos. to operate in Peruvian waters.

15 long liners are taken on lease by Peruvian companies from Japan. They have already started arriving from September 1982. It is understood that the Peruvian companies pay US \$ 100,000 per boat plus operating costs to the owners. The Japanese will buy 80% of the catch. It is stated that each of the vessels can catch about 200 tonnes of big eye tuna which sells at US \$ 5000 a ton.



FISHING GEAR TESTING FACILITIES IN DENMARK

The North Sea Centre, Denmark, has set up the world's biggest flume tank at Hirtshals fishing port for testing model fishing gear. The tank is operated by the Danish Institute of Fisheries Technology.

The facility has been organised as part of fisheries research and development complex being set up by the centre. The Danish Minister of Fisheries, Henning Grove, formally declared the tank open on 14 October 1982.

The flume tank is the widest of any other such tank in the world and will facilitate testing of large pelagic and pair trawlers at scales which will give better modelling accuracy.

The utilisation of the facility has already started and there is demand from the private sector companies for testing their models.

* * *

NORWEGIAN FISHERMEN SEEK RELIEF FROM HIGH COST OF FUEL OIL

Norwegian trawler owners have appealed to their government to provide relief from the high cost of diesel oil. The Norwegian Fishermen's Association has pointed out that, owing to the recent jump in the price of oil, they will be burdened with Norwegian money equivalent to Rs. 15.30 crores of additional expenditure.

* * *

JAPANESE LONG LINERS TO FISH IN AUSTRALIAN EEZ

An agreement has been reached between Japan and Australia in terms of which 350 Japanese long liners will be licenced to fish for tuna in the agreed areas within the

Australian EEZ. The agreement is valid upto October 1983. The Australian government has conceded the facility on payment of licence fee totalling 1.44 million Australian dollars.

* * *

MEXICO REDUCING TUNA FLEET

According to fisheries development plan (1977-82), Mexico was to introduce 150 purse seiners. It is now proposed to reduce the no. of vessels to be introduced to 76. The fisheries Secretary of the Mexican Government is however having difficulties in cancelling the orders already placed with several foreign shipyards.

* * *

UTILISATION OF BY-CATCH FROM SHRIMP TRAWLERS IN GUYANA

The annual shrimp landings in Guyana are of the order of 4000 tonnes. As in India and several other countries, the practice adopted by shrimp trawlers has been to throw the fish by-catch back into the sea.

The Government of Guyana has recently introduced a regulation that the shrimp trawlers should bring atleast 1000 tonnes of fish annually for utilisation of the idle freezing and storage plants in the country. As a result of this directive, M. S. Guyana Fisheries Limited pioneered a number of products that have found wide acceptance among local consumers. The establishment of on-shore facilities for processing about 50 tonnes of raw fish daily, consisting of 20 tonnes for human consumption and 30 tonnes for fish meal is the most significant development. The Danish firm A's Atlas played a major role in the designing and supply of various items of machinery and equipment.

BAADER INTRODUCES NEW MACHINES

Baader Company, Lubeck, West Germany, introduced two new Baader processing machines in the market. One is the Baader 184 for white fish filleting and the other is Baader 234 for Herring filleting. Baader-184 is capable of handling fishes of smaller size with a higher throughput and higher yield than existing equipment. It can handle fishes with an overall length of 30-70 cm. Baader-234 is an excellent filletting machine suitable for fresh or defrosted, salted or spice cured, herring, mackerel etc.

* * *

COMPREHENSIVE SURVEY OF FISHERIES SITUATION IN THAILAND

The Thailand Government ordered a survey of the country's total fishing capacity with a view to planning an effective long range development programme for the fishing industry.

Thailand is currently passing through a very difficult phase in respect of its fishing industry. The Government of Thailand has appointed a 16-Member committee to study the problems in the industry and to introduce necessary methods for tiding over the problems and also to assist fishermen.

* * *

SALE OF DEEP SEA FISHING VESSELS BY KOREA MARINE CORPORATION

The Korea Marine Industry Development Corporation was set up in 1963 by the Government of Korea to promote deep sea fishing industry. It was taken over by a private company in 1972. Although the new owners obtained fishing concessions in US, Nigerian and Mexican waters, the operating losses and debts had increased. This resulted in the move to sell 11

Combination trawler



This type of vessel is custom built in series and is specially designed for as well beam as stern trawling in tropical waters.

The result is a stable vessel with a large working deck area and easy to handle in all respects.

The hull is of the single chine form, giving a large fish hold, a spacious engineroom and a bigger accommodation under deck.

The hull is divided into six watertight compartments: forepeak, crew accommodation, engineroom, fish hold, fuel tanks and aftpeak/netstore.

Freezing of the catch is done by the brine tank on the main deck and by a blast freezer in the hold.

The propulsion installation consists of a Caterpillar marine diesel engine of 270 kW (365 hp) at 1800 rev/min, driving a fixed pitch propeller.

The three-drums fish winch is hydraulic driven. Two auxiliary engines drive a compressor for the freezing installation, generator and a bilge pump.

In the superstructure are provided a galley/messroom, two toilet/shower cabins, two double and two single cabins. In the forepart below deck an eight berth crew compartment.

Nautical and fishing equipment, comprise among others radar, radio installation, direction finder and echosounder.

The vessel obtained the classification Lloyd's $\times$ 100 A1 "trawler" and Lloyd's Machinery Certificate (LMC).

Main particulars:

length overall	23.50 m
length between p.p.	21.00 m
breadth mld.	6.50 m
depth at side	3.40 m
draft (mean)	2.65 m
fish hold capacity	abt. 70 m ³
fuel oil capacity	abt. 40 m ³
fresh water capacity	abt. 15 m ³



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Holland
Phone 01846 - 36 66 Telex 24302 Hohar

MEMBERS OF

HOLLAND CRAFT

HOLLAND CRAFT

Export promotion group

fishing and fish carrying vessels of the company. They were auctioned in October 1982.

* * *

POACHING TAIWANESE VESSEL PUNISHED IN NEW ZEALAND

One of the New Zealand's Naval Survey Ships apprehended the Taiwanese long liner Feng Yuan 51. The Captain of the vessel was fined NZ 10,000 dollars by court. The vessel and her catch was also confiscated. The captain was also ordered to pay 42,000 NZ dollars to the New Zealand navy. Owned by Feng Yuan Company, the long liner was based at Pago Pago in Western Samoa.

* * *

KODEN INTRODUCES NEW CHROMASCOPE

Koden has introduced a new Chromascope, Model CVS-8800 series. The new model has been designed and manufactured based on the comprehensive study on all requirements from the fishermen operating not only small to medium sized but also large fishing boats.

CVS-8800 features a very simple front main panel which contains all the regular operational controls. In addition, behind the hinged main panel, a sub-panel is provided accommodating the knobs which need no adjustment, after they have been once set to specific operational conditions. The CVS-8800 can be directly connected to other graphic type fish finders without interface unit.

The CVS-8800 has an 11-inch colour CRT display. Eight ranges are provided from 10 to 1,200 and the unit of the scale may be switched to meter, fathom or foot. The nominal output power is 1.5 kW which can be boosted up to 3kW as an optional. CVS-8800 utilizes a single transducer, the frequency of which can be selected to 28, 40, 50, 68, 75 or 200 kHz.

The operational mode can be selected by a single knob from the following 7 modes, NORMAL, NORMAL BOTTOM-LOCK, NORMAL RANGE-SPREAD, SHIFT, SHIFT BOTTOM-LOCK, AUTO-SHIFT and AUTO-SHIFT BOTTOM-LOCK. Such a wide selection of operational modes, together with various features mentioned before, enables the CVS-8800 to suit echo sounding for many kinds of fish, fishing methods and fishing boats.

The auto-shift mode is a new function of the Chromascope which is for the first time adopted in CVS-8800. In this mode, the equipment automatically tracks the seabed and displays its contour on the lower half part of the screen. When the seabed becomes too shallow or too deep, the image is always on the screen.

The various range marker, ranger spread marker and the electronic digital depth indicator (DDI) such as the range scale and depth of bottom are all displayed on the screen. The DDI range scale is automatically updated when the bottom image is shifted in the auto-shift mode operation.

The image speed is adjusted in 8 steps, by the IMAGE SPEED

switch. When it is turned to the position 'STOP', it freezes the image. The position '8' gives the fastest speed image advance, i.e. 1 sweep advance per 1 pulse transmission. The decreasing number of the position of switch gives a slower image speed such as 1/2 at '7' then subsequently 1/4, 1/6, 1/8, 1/10, 1/12 and 1/16 at the position '1'.

* * *

INDIA RETAINS 7TH POSITION IN WORLD FISH PRODUCTION

During 1980, according to FAO statistics, India maintained its 7th position among the various fishing nations of the world, with an annual production of 2.42 million tonnes. In 1979 Indian fish production was of the order of 2.34 million tonnes.

In the year 1980 the total world fish landings were of the order of 72.19 million tonnes, compared to 71.27 million tonnes in 1979. Japan continues to be at the top followed by USSR, China, Chile, USA Peru and India.

India maintained its top position in respect of shrimp production in 1980, with a production of 0.2445 million tonnes, compared to 0.1832 million tonnes in 1979. In the world shrimp production, India's share was 14.5% during 1980.



NEW REGULATIONS ON LAPELLING IN FRANCE

Under the new regulation introduced by the Government of France all consignments exported to France will have to bear labels in French. All customs documents accompanying the shipments also have to be in french.

* * *

ALFA-LAVAL'S SUBSIDIARY INTRODUCES FLOATING FISH FARMS

M/s. EWOS AB, SODERTALJI, a subsidiary company of M/s. ALFA-LAVAL of Sweden has introduced a modern floating farm, complete in all respects. It is stated that with only two workers, one farm unit can be maintained. Each of these farms is capable of producing 150 tonnes of fish in a year.

The farms can be moved from one point to another. This facility will enable the farmers to shift their floating farms to places where congenial water conditions prevail. Further, the units can be shifted to a point from where marketing can be done with ease and with savings in expenditure on transportation. Each farm unit will have a storage area to keep fish feed, a slaughter room, engine room, cold storage and mess. These farms have an octagonal shape having a breadth of 50 m. They have an outer pontoon from which 8 radial pontoons lead into the centre where the various service units are located. Fishes are cultured in cages attached to the pontoons.

* * *

SHORTAGE OF CRAY FISH IN SWEDEN

Cray fish, a freshwater species similar to lobsters and much farmed,

is in short supply in Sweden. Turkey is the main country from where Sweden imports the bulk of supplies of crayfish. The other countries exporting crayfish to Sweden are Great Britain, USA and Canada. Around 2000 tonnes of crayfish are imported into Sweden annually of which about 1800 tonnes come from Turkey. The acute shortage of cray fish in Sweden is on account of depletion in the population of this species in their rivers and lakes owing to the spread of a disease.

* * *

FISHERIES RECRUITMENT LIMITED MAKES HEADWAY

The firm, Fisheries Recruitment Limited was set up by Mr. Phil Appleyard and Mr. A. G. Dentol-Thompson in March 1982. The main activity of the firm is to provide senior staff for fisheries enterprises and institutions all over the world, having expertise in various fishery fields including aquaculture and fishing vessel operation. The firm has succeeded in providing senior personnel to various firms and institutions in West Africa, The Carribean, Middle East, South America and the Pacific islands.

The address of the firm is
FISHERIES RECRUITMENT

LIMITED, 56 HIGH STREET,
LYMINGTON, HAMPSHIRE 504
9 AH, ENGLAND.

* * *

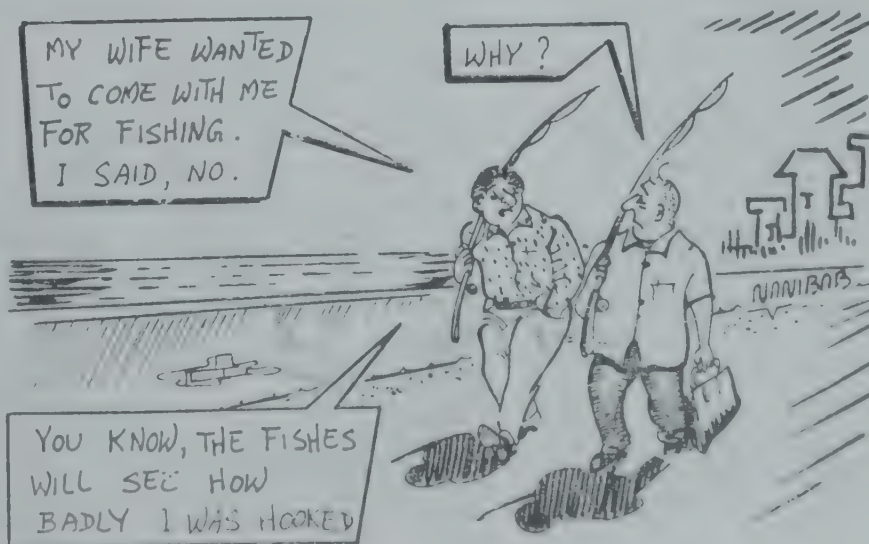
CYPRUS MOVES AHEAD IN CAGE CULTURE

The Department of fisheries, Cyprus has achieved outstanding results in cage culture of marine species. Sea Bass and guilt head bream were grown in cages in densities upto 35kg/m3 successfully.

* * *

ALGAE IN MARICULTURE

Studies conducted at the Rosentiel School of Marine and Atmospheric Sciences at the University of Miami have shown that marine blue green algae could be used as food in mariculture, giving up the use of animal protein or nutrients altogether. The adoption of this practice would however require production of high quantities of blue green algae capable of fixing nitrogen prior to its use as a feed in fish culture. At the University of Miami, a programme for using marine algae and photo-synthetic bacteria in mariculture of fish, shrimp and shell-fish has been worked



out. Under this programme tropical and sub-tropical algae and bacteria are cultured in sea water and either fed directly to shell-fish or indirectly to fish, lobsters and shrimp through the cultivation of other organisms such as rotifers, brine shrimp or copepods.

Successful results were obtained by using blue green algae to feed hybrid tilapia. It was found that the body weight has increased upto 300% in a week.

* * *

FILLIP TO FISH CULTURE IN SRI LANKA

The Government of Sri Lanka has taken special steps to encourage people to undertake fish culture in ponds and reservoirs. Specially trained inspectors and extension workers are being deployed all over the country to extend the requisite guidelines and help. A nation-wide campaign has been introduced to popularise the consumption of fresh water fish which has a second place at present in the habits of the people who prefer marine fish species.

* * *

NEW INLAND FISHERIES CENTRES IN THAILAND

The Department of Fisheries of Thailand has planned to set up 2 inland fisheries centres in Southern Thailand this year. Amount equivalent to 4 million U.S. dollars will be spent on this programme. The Japanese Government is expected to assist in the project. One of these centres, to be located in Surat Thani, will have an extent of 280 acres and the other one in Trong Province will be built in 120 acres. There is a proposal to construct a third centre also at Ayutthaya in Central Thailand. The Japanese will assist in the construction

of the breeding ponds and the various civil structures. The new centres will give a boost to fish production in Southern Thailand.

* * *

NEW PILOT FARM IN THAILAND

A pilot freshwater fish farm, 116 acres in extent was set up at Lam Pas in Kalasin province of Thailand recently by the Thai Department of fisheries. The farm was established with an assistance of US \$ one million given by the Dutch government, through the Interim Mekong Committee for coordination of investigations of the Lower Mekong Basin, which is the executing agency for the project. The setting up of the farm is expected to give a fillip to freshwater farm development in the north-eastern area of Thailand as a result of experimental work and demonstrations given to the farmers at the farm.

* * *

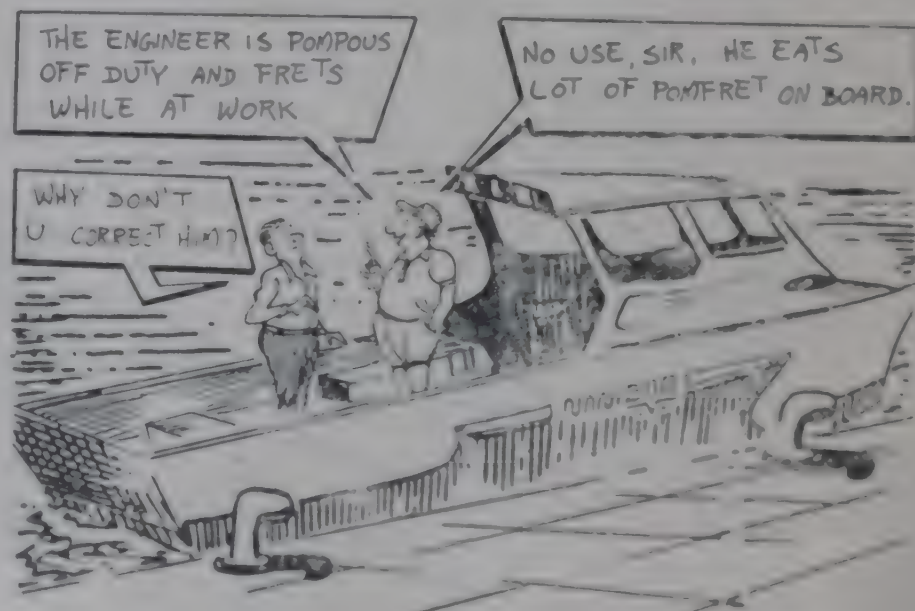
FISHING DISPUTE BETWEEN UK AND DENMARK

According to the Treaty of the Rome, Danes have a right to fish in waters off the British coast line. Apart from this, the member

countries of the EEC, with the lonely dissension from Denmark, agreed in October 1982 on a common fisheries policy. According to this all the members of EEC will have rights to fish up to six miles from the coast line within the EEC's 200-mile economic zone, with access by other member countries to traditional fishing areas between 6 and 12 miles. Under the agreement, to be in force for the coming 3 years, EEC would provide a total assistance of 250 million European currency units for the development of fishing fleet and for other ancillary items of work. Within this grant, aquaculture will get 34 million European currency units. This will benefit sea farmers.

In spite of this, U.K. declared a 12 mile fishing zone for its nationals around its coastline in early January 1983. Under the regulations, only licenced trawlers are allowed to fish in the prescribed zone. It is stated that U.K. had to take this action owing to the failure on the part of the EEC to introduce a common fishing policy. The declaration by U.K. was accepted by all the EEC members with the exception of Denmark.

The regulations, it appears, have effected the fishing operations by



Danish fishing vessels. Danes led by a Member of European Parliament, steamed into the areas of their northern coast to exercise their fishing right, in accordance with the Rome Treaty. It was expected that there would be a serious conflict between the British Naval Patrol and the Danish fishing vessels defying English fishing limits.

The Danish government was not able to subscribe to the declaration by U.K. The opposition parties of Denmark contend that the new policy would favour other EEC members at the expense of Danish fishermen. The Danish Government was unhappy that Britain refused to grant extra licences for Danish fishing vessels, off the Shetland Islands. The Danish fishermen could not also get the mackerel quota which they wanted for fishing in British waters.

Under their regulations, Britain would levy a fine upto £ 50,000 on the vessels defying the ban. In addition, there may be imprisonment of crew and confiscation of fish catches and fishing gears. It is stated that the British government would take the poaching fishermen for trial in English courts.

The Danish government has promised legal help to those who are harassed from the side of U.K. The predicament of Danish fishermen was, apart from losing their traditional grounds around British isles, they also lost fishing areas around Norway too.

The Danish government has advised their fishermen to act in restraint and not to provoke the UK authorities. In the meanwhile, it is stated that EEC's Executive Commission has backed, as a temporary measures, U.K's measures to keep Danish trawlers from fishing in its territorial waters. All Governments in the

EEZ areas were told that new fishing limits introduced by UK and other states would be valid until January 26, 1983. It was hoped that this decision would avoid clashes between Danish fishing vessels and British Naval Patrol vessels.

* * *

MEXICO DETAINS US FISHING BOAT

The U.S. fishing boat 'Lady Robin' was detained and her fish catches impounded by the Mexican navy while fishing in Mexican territorial waters off the coast of Tamaulipas, without an authorisation from Mexican government. U.S. has not so far signed the International Maritime Convention. Nor has U.S. ratified a treaty on maritime limits recognising Mexico's exclusive economic zone. The U.S. had imposed an embargo on import of Mexican tuna in 1980, which created a major crisis in Mexican fishing industry. In retaliation, Mexico has not so far allowed U.S. vessels to fish in its waters.

* * *

BAN ON WHALING

The International Whaling Commission has imposed a ban on hunting whales with effect from 1986.

The 39 Nation International Whaling Commission in an effort to conserve whales which are said to be fast depleting has taken a drastic step in banning the hunting for whales. Though there was jubilation over this from the wild life conservationists from all over the world, nations like Japan, Norway and Soviet Union have already made their intentions clear that the ban would not be honoured by them.

Japan being the major whaling nation reacted first to the announcement made at Washington by the International Whaling

Commission. In a statement made few hours after the announcement of the ban Japanese officials have planned to lodge a formal complaints against the ban. It was soon followed by announcement of Norwegian fisheries minister Thor Litsau that his country would not stop hunting for whales even after 1986, thereby declaring that Norway would not honour the ban.

For Japanese, who kill about 4,500 whales each year, the ban is something difficult to manage. According to an United States Official if Japan has decided not to honour the ban, 'it would be end of whales'. He felt that with such kind of attitude among the fishing nations it would be difficult to do anything for conserving fish in future. In order to protect their whaling industries, Japan and USSR have set up a common platform to voice their protest. However, the United States of America, the strongest supporter of the ban has decided to make the ban possible at any cost. In accordance with its support to the ban the USA has also introduced a penal move on those who defy the ban. Half of their fishing allocation would be cut if anyone in the waters of US defy the ban. According to an official of Reagan administration this step should make a substantial impact on Japan, which operates in American waters off Alaska.

Another step that has been taken by the US government is that there would be an embargo on the importing country which violates the whaling ban.

The voting which took place in London on the ban on hunting whales was attended by almost all the member countries. The voting was 25 against 7, the majority seeking the ban.

STAR FISH

HERE is an estimation of what stars say about fortunes of fishery industrialists, managers and operators for March 1983.

ARIES (Mar. 21 to Apr. 20) :

This is a suitable period to make efforts to heal any strained relationships with your management or superiors. You can look forward and work on improvement in job opportunities. If you try hard, business opportunities will improve. However, it is necessary that you maintain secrecy in respect of your planning concerning financial matters. Great caution in this regard is necessary, if you are to succeed. In the second fortnight, although you will encounter difficult situations, you would achieve success in your aims. Support from partners will be forthcoming. You will launch on a major deal that may bring you considerable money. Fishing results will be on a reduced scale.

TAURUS (Apr. 21 to May 21) :

You will have serious work to do in the early part of the month. Think of all conceivable angles before taking decisions. This will enable you to achieve good results and relief from anxieties. In the second fortnight you will develop greater confidence in dealing with matters. You will see benefits accruing to you in your career or business. You will develop new and useful friendships. In the last week there can be reasonably satisfactory fishing results.

GEMINI (May 22 to June 21) :

In the first fortnight you are likely to face difficult situations in business or career matters. Avoid the mistake of worrying over the past as that is a wasteful exercise. Avoiding this, formulate your own plan in a positive manner to tide over difficult situations. By second fortnight matters will improve, particularly in regard to career. Try to take decisions as you think best and do not depend on others in this respect. You are advised to take care of matters that you have been ignoring all along. Reasonable fishing results can be expected towards the middle of the month.

CANCER (June 22 to July 23) :

The first fortnight seem to be unfavourable. You may feel several constraints in getting on with your work. You are advised to cultivate the art of being firm in your dealings to the extent possible. It may be desirable to be silent for conditions to improve. In the second week you will be very active and there will be inflow of funds. You will regain popularity. Towards the end of the month, you are prone to losing temper. During this period do not make efforts to shoulder any new assessment. While fishing may be generally dull some encouraging results may be expected in the third week.

LEO (July 24 to Aug. 23) :

You will find the developments during the month very discouraging and you have to wait for a more propitious period. You may have difficult time in your professional work. Do not fall

into the trap of any new business offers without thorough evaluation. You may find satisfactory progress in your work towards close of the month and you may receive appreciation from your higher authorities. You will have peace of mind on the domestic front. Beware of unexpected visitors who may create difficulties in your work. Fishing results may not be up to your satisfaction.

VIRGO (Aug. 24 to Sept. 23) :

You can expect increased popularity. A problem that has been causing concern to you is likely to be resolved during the month. It appears that some good luck is in store for you. Make the best use of it by taking correct decisions. Professional work will proceed smoothly. Interesting friendships may develop. Career advancement is possible during the month. A welcome communication from an important source is likely. Satisfying fishing results can be expected during 22-28.

LIBRA (Sept. 24 to Oct. 23) :

Your financial position will improve considerably, although you may not be able to realise the amounts due to you to your satisfaction. You will make good progress in your profession, in spite of certain persons trying to discourage you in your work. Be careful not to get emotionally upset. Do not get unduly perturbed over any communication that will not be to your liking. It is necessary for you to take care of your health. Fishing results will be good during 15-21.

SCORPIO (Oct. 24 to Nov. 22) :

You will be able to cope up with difficult situations. Be straight forward in your dealings. You should obtain guidance from

experienced persons, if the situations are tough. You may not have a lucky break for some more time to come. You will receive a letter that will give considerable comfort. Towards the end of the month professional and personal problems will get resolved substantially. Financial matters also will improve. Fishing results may not be up to your satisfaction.

SAGITTARIUS (Nov. 23 to Dec. 21) :

You will achieve some measure of popularity and would also find improvement in your career. Resolve any outstanding issues through a frank approach. Do not sign any important papers in the month. You may find things going wrong in the second fortnight. Keep your cool and try to set things right without getting panicky and unnecessarily seeking advice from others. There will be improvement in fishing towards the end of the month.

CAPRICORN (Dec. 23 to Jan. 20) :

The financial assistance which you have been expecting may materialise in the early part of the month. There may be difficulties in your profession and it may become necessary for you to seek cooperation from others in

your venture. Do not allow others to force you to take difficult decisions. Any decision taken should be based on your own thinking. Fishing results may not be up to your satisfaction.

AQUARIUS (Jan. 21 to Feb. 19) :

You can take calculated risks and in all likelihood you will succeed. You will have a busy time professionwise. A problem that has been worrying you all along will get resolved. Do not worry over things unnecessarily. Instead, you have to be tactful with your friends and colleagues. Improvement in fishing can be expected in the first week.

PISCES (Feb. 20 to Mar. 20) :

You can be optimistic about good turn of events. Everyone around will be cooperative. You have however to maintain secrecy about important deals. Check everything before investing money. Your intuition and luck will favour you considerably. You will receive a letter that will give you considerable encouragement. Do not fall into the trap of persons who try to victimise you. Promptness in your work will pay. Improvement in fishing can be expected in the second week.

barnacles and other minute and succulent forms of animal life with which the derelict timber is almost invariably covered.

2. PILOT FISH

Pilot fish belongs to the genus *Naucrates*. It has a habit of accompanying ships and large fishes, particularly sharks. It is a small oceanic species, rarely exceeding 15" in length and is found in practically all warm areas. It is common in the Mediterranean. Most of the accounts of this fish given by Greek or Roman writers referred to its association with whales, dolphins rather than with sharks. Aristotle referred to it as 'Dolphin Louse'. This fish is credited with the power of guiding sailors cast upon the ocean and of announcing the vicinity of land by its sudden disappearance. It is believed that the pilot fish has the habit of guiding sharks to their food, enjoying in return a degree of protection from its enemies by the proximity of its formidable companions. It is difficult to say how far this belief is correct. It is however true that one or more of these fishes are usually to be found accompanying sharks and that they will also follow slow moving ships for considerable distance, but it is more likely that the fragments of the sharks' meals or the food thrown over-board from the ships provide the attraction and that their immunity from attack is due solely to their exceptional agility which enables them to avoid being caught by the sharks. The Pilot fish does not always leave a ship as land approaches and in warm weather, they have been known to follow vessels, even accompanying them into harbours.

3. PIPE FISH

Pipe fishes belong to the family *Syngnathidae*. Their body is

ANSWERS TO QUIZ

1. RUDDER FISH

The Rudder fish, of the genus *Lirus*, belongs to the family of *Stromateidae*. The fish is a native of North Atlantic. It has the curious habit of following logs or planks or of taking its abode within floating barrels or broken boxes. On account of this habit the fish is also known as 'Wreck-fish'. The young individuals of this fish often take shelter under jelly fishes.

A story is related of shoal of this species that accompanied a floating log which was finally washed ashore at the Aran islands off the west coast of Ireland. The inhabitants, who were unfamiliar with this fish, thought that they were fairies. They ran away in fright. An old man who carried some of these fishes home with him was not permitted to take them into his house. The attraction for the fishes to follow floating logs are the

shaped like a pipe. They have a tube like 'beak' acting as a syringe, the prey being drawn in rapidly inflating the cheeks. They live almost entirely on small crustaceans and when searching for food they swim about in a curious manner, holding the body some times in vertical and other times in horizontal positions and indulging in wriggles and contortions of every conceivable kind. The head is in constant movement, the long snout being poked into clumps of vegetation or into other situations where the prey is likely to be encountered. They bear a marked resemblance to the fronds of sea weed among which they live.

Pipe fishes exhibit parental care. The care of the eggs and fry is always undertaken by male fish, who carries them about until hatched, either 'glued' to the simple groove lined with soft skin in the lower surface of the abdomen or in a special pouch closed by the flaps on skin and situated on the undersigned of trunk or tail.

4. PADDLE FISH

This is otherwise known as 'Spoon Bill'. It belongs to the genus *Polyodon* and found only in the rivers in the southern states of north America. This fish lives entirely on mud and the minute organisms contained therein. It has a comparatively wide mouth armed with small teeth. The rostrum, forming no less than one fourth of the entire length of the fish, is a thin, flat, spoon shaped blade, the outer surface of which is more or less sensitive.

5. NEEDLE FISH

This belongs to the family *Syntriscidae*. They are otherwise known as shrimp fishes. These are curious creatures, with a long compressed body encased in a

thin body cuirass with a knife-like lower edge. One species found in the Indian ocean lives in small shoals of about half of a dozen individuals, and normally swims about vertically, with a long tube like snout pointing upwards. On occasions, however, it has been observed to move in the normal horizontal attitude and even vertically, but upside down!

6. MUKI-MUKI

This fish occurs around Hawaii islands. It is otherwise known as the death dish. To eat this species is to invite almost certain death. The principal symptoms are paralysis and serious gastronic derangement.

7. DEVIL FISH

Devil fishes are rays belonging to the family *Mobulidae*. They belong to genus *Manta* which can leave the water on occasion, and, by means of awkward, wheeling, edge-wise leap, sail through the air to a height of more than 5 ft. from the surface of the water. A full grown specimen is around 20 ft. long and weighs more than 400 kg. The noise made by its body as it returns to the water resembles the discharge of a cannon, being audible at a distance of several miles. The strength of this fish is enormous. When harpooned it will drag a boat through the water at a great speed.

8. ANGLER FISH

Angler fishes belong to the family *Ceratiodea*. These are the inhabitants of the mid-waters of the oceans. The relationship between the sexes is unique among fishes and indeed among vertebrates. The free swimming individuals are females. The males are mere dwarfs and spend the greater part of their lives as parasites upon the females. A fish taken near Iceland

was 40" in length and the attached male was about 4" long.

9. FROG FISH

Frog fishes belong to the family of *Antennariidae*. The genus *Pterophryne* lives on open Atlantic sea drifting about with the currents in masses of sargassum. The sargassum weed provides perfect concealment to the fish. Other frog fishes are short dwelling forms.

News International

DEMAND FOR ROCK COD (GROUPERS)

It is stated that there is a heavy demand for groupers, red snappers, white pomfrets and seers in the various countries of the near East.

INFOFISH, P.O. Box 899, Kaula Lumpur 01-02, Malaysia should be in a position to help the Indian exporters to get into touch with the importers in the countries of the Near East.

* * *

News International

LOW PROFITS IN SHRIMP INDUSTRY IN PAKISTAN

Sea food exports from Pakistan have been on the increase over the past three years, from around 13,000 tonnes in 1979-80 to over 18,000 tonnes in 1981-82. While this increase is not considerable, there is a strong feeling in Pakistan that the resources are being over-exploited.

It is also stated that profits from shrimp exports have come down considerably. In Karachi fishing harbour, there are 16 shrimp processing plants. Of these, six are closed. Of the remaining, 4 are run intermittently. The reduction in profits is attributed to the increase in the number of buyers of raw material which has led to keen competition.

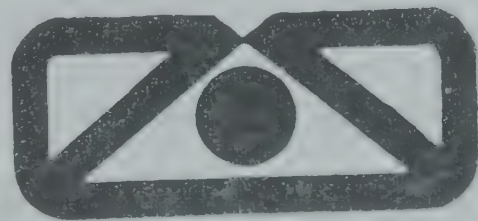
Our Modest Contribution to Indian Deep Sea Fishing Industry

AS AUTHORISED REPRESENTATIVES OF HOLLANDCRAFT, HOLLAND (GROUP OF 24 DUTCH SHIPYARDS) WE ACCOMPLISHED THE IMPORT OF FIRST BATCH OF FIVE COMBINATION TRAWLERS, PRESENTLY UNDER OPERATION FROM VISAKHAPATNAM. THE VESSELS ARE STURDY AND FITTED WITH WORLD'S BEST EQUIPMENT WHICH MAKES THEM DURABLE AND DEPENDABLE.

WE HAVE JOINED WITH WORLD LEADERS IN DEEP SEA FISHING VESSEL INDUSTRY ARRANGING COLLABORATIONS AND JOINT VENTURES AND IMPORTS OF FISHING VESSELS.

PLEASE CONTACT FOR FURTHER INFORMATION:

UniGeneral



3-B Vandhana, 11 Tolstoy Marg, New Delhi-110001 Tel : 44888, 44889 Telex : 031-3894 UNTX IN

INTERNATIONAL SUPPLIES AND SERVICES.

Training Course in Brackishwater Shrimp Culture and Extension



**INAUGURAL ADDRESS BY MR. S. N. RAO
CHAIRMAN, MPEDA**

A training course in brackishwater shrimp culture and extension was conducted at Vallarpadom Project Complex in Kerala, from 3 to 29th January 1983. 15 fisheries officials representing various maritime state fisheries departments participated in the training course. Mr. G. Santanaprishnan, Deputy Director, MPEDA was the course coordinator. Mr. S. N. Rao, Director, MPEDA inaugurated the course.

The estimated area suitable for aquaculture in India is 1.75 million hectares. However only 45,000

hectares are now covered by aquaculture. MPEDA has undertaken a major programme of imparting technical know-how on culture prawn by scientific methods during the various regional centres set up for the purpose. There are however limitations on such centres to achieve the goal of covering atleast 50% of the total area identified for prawn culture. Therefore need is felt for creating sufficient manpower with basic technical know-how on prawn farming is keenly felt. To fulfil the need, MPEDA organises training courses from time to time. The course

conducted in January 1983 covered the following subjects:

- a) Survey & site selection
- b) Pond construction
- c) Treating pond for stocking
- d) Collection, segregation, packing and transport of shrimps from the surf
- e) Nursery Management with post larvae of shrimps
- f) Stocking of the pond with proper stocking ratio
- g) Monitoring biological parameters and pond management
- h) Biological and artificial feeds
- i) Principles of harvesting
- j) Estimation of seed demand and necessity for setting up a hatchery
- k) Brood stock development and hatchery management; and
- l) Preparation of feasibility report and economics in prawn farming.

The course covered practical field training also in respect of survey, site selection, stocking of ponds, collection, segregation, packing and transport of shrimps and harvesting

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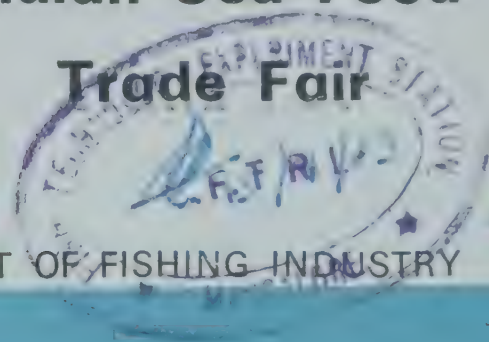
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Letters to the Editor

Dear Sir,

You have rendered a great service to fishery entrepreneurs by publishing the latest rules on operation of foreign fishing vessels in Indian waters in your December 1982 issue. It would be of further help to those interested if step-by-step action points to be followed by them from time to time till the securing of the permission are outlined in your journal.

Yours sincerely,
K. Antony
Cochin

Dear Sir,

While government wants to encourage the establishment of joint ventures in the field of deep sea fishing, and the international conference on deep sea fishing held recently in New Delhi laid emphasis on this aspect, we find that there has been no breakthrough in this respect so far. In contrast, we find that in other countries a large number of flourishing joint ventures have been established. Can you educate your readers with an analysis of the situation?

Yours sincerely,
G. P. Rao
Visakhapatnam

Dear Sir,

The write-up on 'Floating fish cages in Vellore fort moat' in T.N. Newsletter published in your January 1982 issue is interesting. It will be worthwhile for the various state fisheries departments in the country

to adopt similar techniques, if not already introduced, in their states.

H. S. Lal
Delhi

Dear Sir,

It is an encouraging news that CMFRI has recently acquired a new research vessel 'R. V. Skipjack' and that it would be utilised for a proper assessment of our marine fishery wealth.

EEP, functioning under the ministry of agriculture, has several sophisticated vessels for exploratory work. While the results of this work provide the industry with information on fishing grounds, the commercial activities flowing out of this will depend on the assessment of available stocks in the respective grounds. I hope that the results of work on EEP and CMFRI vessels will be

co-ordinated effectively for the benefit of the fishing industry.

Yours sincerely,
D. Patnaik
Cuttack

Dear Sir,

In February 1982, I had made a comprehensive review of the fisheries situation as it exists in India with certain recommendations. This paper was handed over to the Cabinet Secretary, Mr. Krishnaswamy Rao Sahab. There was a flurry of activity immediately afterwards at higher levels and then nothing more happened. To my surprise, I found parts of my paper were taken verbatim and reproduced in 'India Today' on 31st July under the heading "Trawlers at Sea", without even consulting me or even acknowledging the source. In fact every word in that article was taken from my paper. This is the article which you had mentioned as written by Mr. Dilip Bobb in the October 1982 issue of Fishing Chimes.
Cmde. K. M. V. Nair
Madras



Technocrats and Deep Sea Fishing

Deep sea fishing is no doubt a capital-intensive industry. The requirements of heavy capital outlay, even taking into account the high level of availability, prevent small entrepreneurs to take to the activity. Financial aspect is not however the only constraint. The activity requires technical background and managerial skills. All small entrepreneurs do not have them. However, a good number of skippers, engineer and executives who have gained experience in the field, who will, by and large, come under the category of small entrepreneurs, constitute a competent nucleus to undertake deep sea fishing.

PRESENT POLICY

The present policy of the government is to encourage small entrepreneurs to enter the field of deep sea fishing. The fact that loans from S.D.F.C. are provided to them supports this view. While technocrats as described above can secure loans from SDFC, it will still be a problem for them to mobilise the required share-capital or their matching contribution of funds to the extent of 5-10% of the cost of vessels to be eligible to get loan of the order of 90-95% from SDFC.

NCDC's ASSISTANCE

In the co-operative sector, the National Co-operative Development Corporation and the state governments provide financial assistance towards share capital of fishermen's co-operatives. While deep sea fishing is not included in the schedule of assistance offered by NCDC, it

should not be difficult for the corporation to include this item as well. Once this is included, fishermen's cooperatives can get assistance from NCDC and state governments towards share capital besides certain subsidies for taking up deep sea fishing.

DEEP SEA FISHING CO-OPS

It will be a good step for technocrats to form into deep sea fishing cooperatives, acquire vessels and operate them. However, under the present system only traditional fishermen, mostly by caste are allowed to form into fishermen's co-operatives by the state governments.

WHO ARE FISHERMEN?

Many of us have still the fixation in our minds that those borne into fishermen families are fishermen. With the advances in fishery technologies the concept has to be changed and the term 'fisherman' has to be redefined. Any person who is in the profession of agriculture is a farmer. He may be a Shudra, a Kshatriya or a brahmin. Like-wise a person belonging to any community but in the field of fisheries has to be defined as a fisherman. Technocrats in the field of fisheries are professional fishermen and they should have the right to form into deep sea fishing co-operatives. It is of crucial urgency to give a serious thought to this and the central and state governments have to enable (through a new definition of fishermen) fishery technocrats to form into co-operative societies. The technocrats to form into a society have to consist of various categories such as skippers, engineers, engine drivers, deck-

hands, cooks, RT operators etc. The minimum number to constitute a society may be determined based on a single fishing unit.

MAJOR BREAKTHROUGH POSSIBLE

Such societies, when formed, will provide a major breakthrough in the fruitful utilisation of the talents of technocrats and in giving a fillip to deep sea fishing among entrepreneur-technocrats. The union department of agriculture (co-operation division) can prepare model memorandum and articles of association for such societies for circulation. The department can also popularise the idea through publicity. The financial and other items of assistance which societies require from the NCDC, state governments, co-operative banks, SDFC, etc. can be worked out and a scheme in this respect can be framed for adoption. The co-operatives can be prevailed upon to introduce indigenously constructed deep sea fishing vessels.

Deep sea fishing co-operatives proposed as above will have the potential of becoming a success. The members being professionals and the co-operative being their own enterprise, and since profits will be shared by them all, they are likely to work hard and land sizeable catches. Once the first one or two such societies succeed more of this nature will be set up. All this will lead to an increase in the number of deep sea fishing vessels, which is what is required now for the effective exploitation of the fisheries resources of our exclusive economic zone

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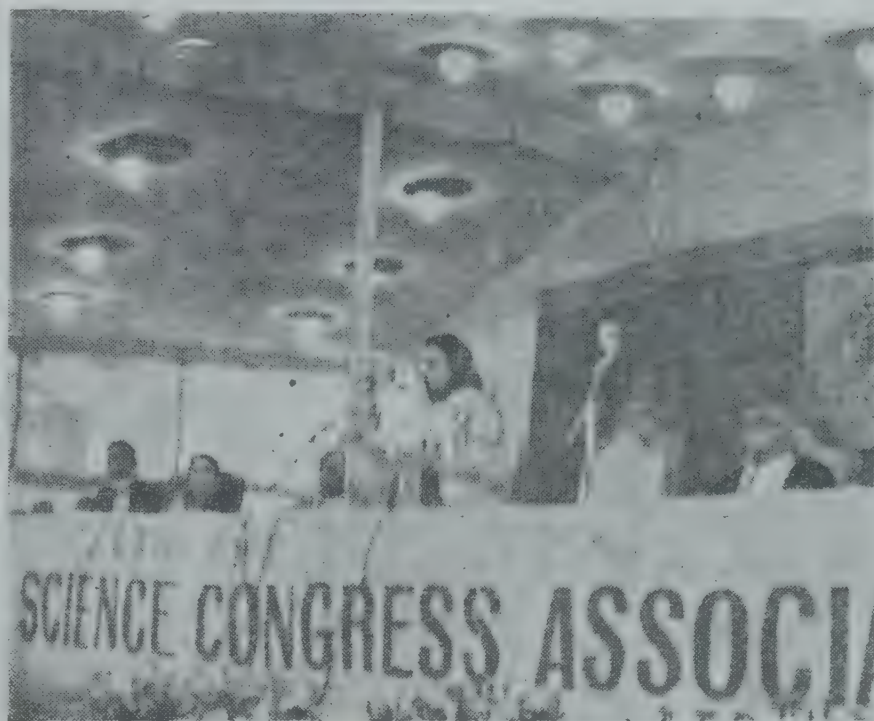
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Fish in Science Congress

Dr. A. P. TYAGI & Dr. RANJANA SAXENA

The 70th session of Indian Science Congress Association was hosted by S. V. University, Tirupati from 3rd to 8th January 1983. Mrs. Indira Gandhi, Prime Minister of India inaugurated the Congress, which had a fairly large representation from India and abroad. The key note address on the focal theme 'MAN AND THE OCEAN—RESOURCES AND DEVELOPMENT' was delivered by the General President, Prof. B. Ramachandra Rao, M.P. In his address, Prof. Ramachandra Rao discussed a wide range of topics including physical and chemical characteristics of ocean, biological and physical resources, energy, environment, research and training, conservation of resources and instrumentation concerning the focal theme. Besides this, he visualised future concept about the ocean.



MRS. INDIRA GANDHI SPEAKING AT THE SCIENCE CONGRESS

SYMPOSIUM ON FOCAL THEME

A symposium was also organised to discuss the focal theme and the major contributions included, 'Marine faunal resources of India and mariculture' (P. M. Misra, Berhampore), 'World Fisheries: Status and outlook' (S. Dutt, Visakhapatnam) and 'Ocean floor remote sensing' (I. V. Muralikrishna and L. R. A. Narayan, Secunderabad). Besides others, Prof. T. Kawasaki, Department of Fisheries Biology, Tohoku University, Sendai (Japan) actively participated in the deliberations. However, it was surprising to find research contributions on the freshwater fishes also in the abstracts of this symposium. Contributions

from the agencies like, National Institute of Oceanography and Marine Fisheries Research Institute could have added to the knowledge much more. The popular lectures 'Harvesting the Ocean' by Prof. D. K. Dasgupta, President, Section of Agricultural Sciences and 'Perspectives in Biotechnology' by Dr. M. S. Swaminathan were quite informative and filled the void to a good extent.

KARYOLOGICAL STUDIES ON FISHES

The first meeting of the section of Zoology, Entomology and Fisheries was held in the afternoon session of January 3rd, 1983 under the presidentship of Prof. L. S. Ramaswami and Prof.

C. C. Das sectional President delivered the presidential address on 'Chromosomes in marine fishes'. Prof. Das emphasised the need of karyological studies on fisheries to facilitate further studies on their systematics and phylogeny. The karyology of the orders Perciformes, Tetraodontiformes, and Pleuronectiformes was described in detail. The lecture was well illustrated and supported by important references on the subject.

On January 4, 1983 a plenary session on the focal theme of the 70th session of ISCA was held. The main speakers included Dr. S. Z. Qasim (Secretary, Dept. of Ocean Development) and Mr. V. V. R. Varadachari (Director, NIO). Dr. G. S. Sidhu, Director General,

CSIR took an active part in these deliberations.

PAPERS ON FISHERIES

The meetings of the section of Zoology, Entomology and Fisheries were conducted in a commendable manner which helped in meaningful and constructive discussion. The credit goes to the sectional President Prof. C. C. Das (Chairman, Zoology Dept., Berhampore University, Berhampore) and Recorder Dr. A. K. Bhattacharya (Reader in Zoology, Kalyani University, Kalyani) for this exemplary success. Following is the list of papers presented (Fish & Fisheries only) on the occasion:

1. The nature of hormone release mechanism of the pseudobranchial neurosecretory system in *Glossogobius giuris*.— A. Gopesh and C.B.L. Srivastava, Allahabad.
2. Chromosomal studies in three species of hillstream cyprinids (Pisces).— S.N. Biswas, Kalyani.
3. Lactate dehydrogenase pattern in some inland fishes.— M.R. Krishna Rao and A.R. Khuda-Buksh, Kalyani.
4. Measurement of heterotrophic and ammonifying bacterial populations as affected by the fish *Clarias batrachus* (Linn). S. Barat and B.B. Jana, Kalyani.
5. The influence of *Clarias batrachus* on the environmental behaviour of different species in experimental aquaria.— Supriya Sengupta and Mala Sinha, Kalyani.
6. Influence of season, gonadotropins and gonadal hormones on perch thyroid activity.— P. Chakraborty, D.K. Rikshit and S. Bhattacharya, Shantiniketan.
7. Comparative morphology of carotid labyrinth and modified

pseudobranch in certain teleostean fishes.— K.N. Pandey, S. Tripathi and C.B.L. Srivastava, Allahabad.

8. Comparative studies on the gonadosomatic index in two bottom feeder teleosts.— Ranjana Saxena and A.P. Tyagi, Muzaffarnagar.
9. Studies on the relative abundance and seasonal variations in the occurrence of the post larvae of two species of penaeid prawns in the Bahuda river estuary.— J.P. Sahu, Berhampore.
10. Studies on the melanogenesis in the fish *Rasbora daniconius* (Ham.) as a result of simple background responses and those combined with pituitary extract administration.— S.K. Shrivastava and H.N. Bhargava, Sagar.
11. Maematological and haemopaetic responses to starvation in an airbreathing fish *Channa punctatus* (Bloch).— T.R. Dheer, C.L. Mahajan and J.M.S. Dheer, Jaipur.
12. Seasonal variations in blood glucose level and its bearing on carbohydrate yolk synthesis in the airbreathing fish *Channa punctatus* (Bloch).— Mrs. U.R. Acharya, G.P. Verma and C.C. Das, Berhampore.
13. Identification of fish species of the genus *Labeo* by electrophoretic analysis of the fish myogen.— W.V. Singh, H.T. Singh and Ch. Satyabati Devi, Imphal.
14. Toxicity of mercuric chloride and phenol mixture on the hepatopancrease of the freshwater murrel *Channa punctatus* (Bloch).— T. Bhattacharya, S. Chatterjee, S. Bhattacharya and A.K. Ray, Shantiniketan.
15. Histopathological effects of carbaryl and endosulfan on the kidney of *Channa punctatus*.—

S.K. Kulshrestha and Neelam Arora, Mhow.

It was a pleasant sight to see senior members of the community like, Dr. S.Z. Qasim, Dr. S. Varadarajan, Dr. T. N. Khoshoo, Dr. E.G. Silas, Prof. K.C. Bose, Prof. G. K. Manna, Prof. J. S. Datta, Munshi, Prof. R.S. Saini, Dr. Tikedar, Dr. A.G.K. Menon and Dr. Raj Tilak listening to the problems of the 3rd 4th generation of scientists. The participants will always remember the 'ever green and ever ready' Prof. R. Ramamurthy (Local Secretary) the moving soul behind the nice arrangements.

EXHIBITION

An Exhibition on the focal theme was another attraction of 70th session of ISCA at Tirupati. The Anthropological Survey of India (Mysore) presented the dependence of tribesmen of Andaman Nicobar on the marine resources in an appealing manner. An illustrated description of the improved technique of shrimp culture, developed by National Institute of Oceanography was another attraction for the fishery scientists. The exhibition of children's paintings on the focal theme gave an idea of the consciousness of younger generation.

IRKING TRENDS

Despite all the grandeur, the 70th ISCA exhibited some irking trends. When out of 74 papers (Fish and Fisheries) selected for presentation, only 15 were presented, there was disappointment. It indicates that either the people did not turn up or they misused the opportunity in other ways.

One more trend in the fish and fishery research deserves a serious thinking is the use of 'abnormal fishes' (airbreathing) in the

experimental studies. The results of such investigations may be of academic interest but their real application is doubtful. The fellow scientists should divert their attention to other varieties of more economic value, though it may need more efforts.

Indian Science Congress is a premier national organization. Its annual session gives an opportunity to the fellow scientists to exchange views. The Railway Authority's decision to slash the Railway concession by 25% has adversely effected the participation in this great event.

GOVT. RESEARCH UNITS NEED TO BE MORE ACTIVE

Indian Science Congress projects the national progress in the fields of science and technology. Therefore, the scientific community should take the occasion seriously. It was disheartening to note that the Government research establishments who are the major consumers of research funds, did not participate actively and were represented either by their departmental heads or a team of observers. Such a practice not only reflects badly on these organisations but also defeats the very purpose of holding a Science Congress.

In view of growing number of disciplines and participants, it is a general feeling that managing the Congress is becoming more and more difficult. Independent Congresses for each discipline can solve this problem eg., Indian Ichthyological Congress. The sessions of Congress of different disciplines should be followed by the session of parent body - Indian Science Congress Association to view the developments in national context and to coordinate and execute interdisciplinary approach to various problems.

REPORT

West Bengal News

The brackishwater fish farm on Henry's island has become functional and the initial results are stated to be very encouraging. The farm has total spread of 100 hectares and a water area of 57 hectares. 11.5 metric tonnes of shrimp was produced during in a period of 9 months. The farm has netted a surplus of Rs. 40,000 in a 9 month period ending December 1982. The second phase of the farm with a total extent of 100 hectares is nearing completion.

BANKS SANCTION LOANS

There has been a breakthrough in the working of fish farmer's development agencies in the state. While banks were wary in providing funds to the agencies previously, now they have been sanctioning adequate funds. The authorities of the agencies submitted about 7,700 application for loans from banks on behalf of the farmers. A little over 2000 applications have been cleared by the banks and loans sanctioned. It can be mentioned here that unlike other states all the ponds covered by the agencies are privately owned.

HATCHERIES

The state has plans to set up 9 hatcheries in the state under the world bank project. The work on the hatchery at Midnapore (10 ha/Rs. 30 lakhs) and Burdwan

(25 ha/Rs. 50 lakhs) is in progress. It is expected that the hatchery at Midnapore will become partly operational in 1983-84. For the third hatchery it is stated that tenders are finalised. In regard to the fourth one, land has been taken over and so far as the fifth is concerned the site selection has been done. For the sixth hatchery there was some problem about site selection. Now an alternate site is being located in Jalpaiguri. Work relating to selection of site etc. for the remaining hatcheries will be taken up in due course.

A Chinese type hatchery set up at Malda, is functioning well. A large number of mobile hatcheries have been introduced and given to fishery groups for operation.

STATE LEVEL TRAINING CENTRE

There are 11 fishery farmers development agencies in West Bengal. The first one was set up in Burdwan district in 1973-74. All these agencies are functioning under the fold of the world bank project. So far a little over 1200 hectares of water area has been brought under production in the past 3 years. A state level training centre under world bank project has been set up at Kulia. At this centre training will be provided to fish farmers, bankers and fisheries officers. The deputy director of fisheries, Kulia, will be in charge of the training centre.

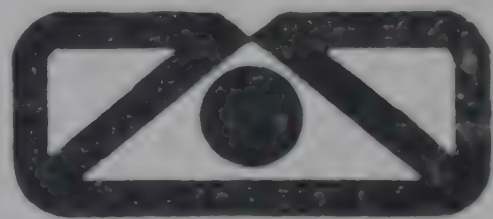
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INTERVIEWS

Shell Fish and Tuna are our main interest, Says Spanish Delegation

VIJAY

A Spanish delegation led by Mr. Miguel Maiza Esnaola consisting of four other members from specialised fields of Spanish fishing industry have visited India in February 1983 to look into possibilities for joint ventures. Mr. Maiza is considered to be the father of fishing industry in Spain. He is head of umpteen bodies in Spain that deal in fishing industry. Delegation had the opportunity to come into direct contact with the fishing industry in India at Madras, Visakhapatnam, Cochin and Bombay. Their final meeting with the officials of agriculture ministry at the end of February may pave way for joint ventures between the two countries.

Spain has the largest tuna fleet in Europe. Their boat building yards are rated to be one of the best. Their boats are operating in Cuba, Latin American countries and Europe. Spain is the second largest consumer of fish in the world, its per capita consumption of fish is 37 kg. Spain imports 400 million dollars worth marine products every year. According to Dr. Sakthivel, Advisor, Agricultural Products at Indian Mission at Brussels, shrimp of all variety, squid, cuttle fish, tuna, sole, sea bream and sword fish have good market in Spain if they are in IQF condition. Squid is very popular.

India has exported frozen shrimp to Spain during 1982 of about 160 tons valued at 79.35 lakhs. During 1981 the export of shrimp to Spain was only 9.82 tons valued at 20.13 lakhs. As for squids, during last year we have exported 130 tons to Spain valued at Rs. 20.25 lakhs. During 1981 it was 123 tons valued at 17.89 lakhs. However during 1979 we have exported the highest ever quantity of squid to Spain. It was 256 tons. But the value was only 3.34 lakhs. It is however obvious that the returns are growing gradually.

Spain offers best scope for exports and joint ventures with the Western Europe. Time has now come for both countries to reap mutual benefits relating to fishing industry.

Mr. Miguel Maiza Esnaola, the leader of the delegation along with his other members gave a brief interview to Fishing Chimes, the details of which are as follows:

Q. Mr. Maiza, what are your impressions on the fishing industry of Visakhapatnam?

A. We have met several persons individually here to discuss various matters relating to the fishing industry. We can form an idea only after assessing the details. As for the basic structure here, it is very good; we have seen the fishing harbour and several processing plants. We are impressed.

Q. What is your main objective in visiting India?

A. We have been invited by the Indian Government to see for ourselves all aspects of fishing industry in Madras, Visakhapatnam, Cochin and Bombay. At Madras we have visited the Fifth Sea Food Trade Fair. There we could see things relating to sea foods and some equipment. Actually at Visakhapatnam we have come into direct contact with the fishing industry as such. All facts about the fishing industry in India have been provided to us by the Indian officials connected with this trip. We are interested in some of these physically ourselves, before forming definite lines on what to offer and what to take.

Q. What is the scope for your joint ventures with India?

A. We feel that the rules and regulations connected to this business should be free and relaxing. We have two kinds of collaborations with other countries i.e. Licencing and charters. We have 17 of these type of relations with many countries in Latin America, Europe and Africa. All are happy about these connections. No complaints so far.



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1977-78	-	174	Tonnes
1978-79	-	262	Tonnes
1979-80	-	478	Tonnes
1980-81	-	603	Tonnes
1981-82	-	797	Tonnes

S. K. AMIN
CHAIRMAN

B. CHANDRASEKHAR
MANAGING DIRECTOR

Q. What is the speciality of Spanish fishing industry?

A. Everything. We have the best boat building yards under EUROPECA and NOGAR. Our boats are of varied size and serve varied purposes. We are specialised in trawlers and tuna purse seiners. We have the biggest tuna fleet in Europe.

Q. What are the main areas you intend to have joint ventures with India?

A. Shell fish and tuna, preferably. If there are other areas of mutual interest, we would be able to work them out. Spain has a per capita consumption of fish at 37 kg. It is the second largest fish consumer in world, first being Japan.

Q. What is the most favourite fish in Spain?

A. Shell fish and hake. Shell fish of all kinds go well in our markets. And all types squid, cod, cuttle fish, octopus and sole too have good market in our country.

Q. After your final meeting at Delhi can you give a specific time table in bringing about cooperation between Indian and Spain?

A. We are always ready. It all depends on the Indian Government.

Q. What particular field in India has impressed you?

A. Well, we should say everything is alright here. We are satisfied with all the aspects. We have studied infrastructure, Government's rules, production capacity and also fishing grounds, variety of fish that is available, types of vessels that are needed for proper operations etc. We cannot say about just one particular aspect. It is good in general.

All amenable schemes to be implemented through Co-ops, Says Sankara Subbaiyan

Mr. V. Sankara Subbaiyan, I.A.S., Director of Fisheries, Tamilnadu answered a few questions on the development of fisheries in Tamilnadu put by your Editor during a recent meeting.

An account of the questions and answers is given hereunder:

Q. It is true that the results of pen culture in Killai waters are encouraging? What is the follow-up action you propose to take?

A. The results of pen culture in Killai waters is sufficiently encouraging. We have taken steps to extend the technology to other areas under the auspices of the Tamilnadu Fisheries Development Corporation. We have placed Mr. Isac Rajendran, Joint Director, in-charge of the Brackishwater Fish Farm of the Tamilnadu Fisheries Department in a ex-officio capacity as the Project Officer for the purpose. Under his leadership, we expect that the activity will be introduced in other areas.

We also propose to introduce pen culture in inland water areas such as reservoirs and other water bodies for raising fish seed as well as increasing fish production. In reservoirs, we have the problem of fluctuating water levels. This will however be met suitably.

Q. Have you taken any steps for the extension of pair trawling technique, so successfully demonstrated recently at certain centres in Tamilnadu?

A. Yes. We are now demonstrating the technology through our



MR. V. SANKARA SUBBAIYAN

in-shore fishing stations. We are now providing a subsidy of 20% to those who want to take up this new method of fishing.

Q. What is the present strategy followed for the development of reservoir fisheries in your state?

A. Firstly, while the inherent potential of reservoirs for making a substantial addition to the total fish production is limited, our approach is to derive the highest possible fish production from these resources. At present we are stocking all big reservoirs with fingerlings @ 500 nos. per ha, and

1000 nos. in the smaller waters. The seed for stocking is grown mostly in farms located adjacent to the reservoirs. The harvesting is done by the department by engaging fishermen on share catch basis. 1/3 of the gross proceeds are paid to the fishermen. The department now proposes to introduce cages in the marginal waters of various reservoirs. The idea is to allot specified areas to selected fishermen with a suitable marketing link-up. Arrangements are proposed to be made for the transfer of the relevant technology to the fishermen.

Our present average fish production from reservoirs is 30.50 kg/ha/annum. Palar-Porandalar reservoir in Madurai district yielded the highest production of 131 kg/ha/annum in 1981-82. Against a target of 30 tons, the total catch was 82.35 tonnes. The bulk of the catch was Tilapia.

Q. What steps have been taken by your department for the popularisation of the brackishwater fish farming?

A. This activity will be popularised under the central scheme introduced recently. Apart from this, the Tamilnadu Government proposes to lease out suitable lands for setting up farms preferably to fishermen's cooperatives. 1/3 of the cost of construction as well as expenditure incurred will be given as subsidy. Capital requirements will be provided to the fishermen from district land development Bank.

Q. What is the present state of development of pearl culture?

A. There is a pilot research-cum-commercial programme now under implementation at Tuticorin. The realisation is about 30% out of those transplanted. We are

encouraged by these results and we have proposals to set up a joint sector pearl culture project under the name "Tamilnadu Pearls" in collaboration with SPIC.

Q. I understand that the State Government has undertaken a housing programme for fishermen. What is the progress?

A. There has been significant progress under the programme and the scheme continues. However, non-availability of suitable sites, suitable contractors, disputes with contractors and other factors have been creating several problems in the implementation of the scheme. There is no financial constraint in this respect.

Apart from the housing programme, considerable headway has been made in the setting up of cyclone shelters. 94 such shelters have either been constructed or under construction, at a cost of Rs. 3 lakhs each, with assistance from UNICEF/RED CROSS/EEC. These shelters are used for dispensaries, adult schools, tailoring centres, general education, extension education, family welfare, helipads, etc. At the time of cyclones, these places are thrown open for the use of the fishermen.

Q. What role is the state fisheries department playing in the development of deep sea fishing?

A. We play basically a promotional role as the activity is in the central sector. We have however recently introduced an ordinance to regulate fishing activities on the various types of fishing craft. The landing places for these boats will be notified soon. Patrolling arrangements are being worked out.

Q. Have any new fish farmers development agencies been sanctioned by the state government?

A. The state government has sanctioned 4 new fish farmers development agencies of which 3 in Kanyakumari, Periar and Pudukkottai were sanctioned in June 1982 and one in North Arcot in September 1982. Up to 31st October 1982, 173 tanks with an extent of 1900.425 ha. were taken over by the FFDAs. The number of beneficiaries is 1699 1377 farmers have been trained. Out of 12 FFDAs, harvesting was done in 8 FFDAs in 1716 ha. The total catch upto October 1982 was 1262.703 tonnes giving an average of 735.88 kg. per hectare. The highest average production was in Thanjavur West (1101 kg/ha) while the lowest was (350 kg/ha) in Tirunelveli. The income derived from sale of fish during the period in all 8 FFDAs was Rs. 68.66 lakhs. The average income per fishermen annually was Rs. 2856.

Q. What is the present stage in seed production? Do you import fish seed?

A. Induced breeding is fast becoming a common system for producing fish seed in the state. Carp hatcheries are being set up. Our present per hectare production of carp seed is 133 lakhs. We are more or less self-sufficient in seed production. We are however still deficient in respect of silver carp and grass carp seed. This year we have obtained 6 lakh nos. of silver carp fry from Tungabhadra dam.

Q. Has anything been done under the mini-kit distribution programme?

A. We have distributed the mini-kits received from the Ministry of Agriculture in four FFDAs. 20 farmers in each district received the mini-kits. Several of the farmers have been able to achieve significant results in induced breeding through the utilisation

of the mini-kit and there is considerable demand for the supply of these kits by others.

Q. I understand that you have taken up some scheme for mechanisation of country craft in your state. Can you say something on this?

A. We have taken up a scheme for the mechanisation of country craft at Manappad in Tirunelveli district. Under this scheme all existing country boats will be motorised. A subsidy of 20% of the cost will be given to the fishermen. In fact, this motorisation was tried on an experimental basis by the manufacturers of Mitsubishi-Shakti and demonstrated successfully to the fishermen. The fishermen are convinced, as a result of which the scheme has been taken up.

Q. Why you have limited this programme to Manappad alone?

A. Our proposal is to encourage introduction of mechanised boats at places where harbours can be provided or are already there and where shore landing facilities are available. Along Coromandel coast, which is surf ridden, the introduction of beach landing craft is being encouraged. In the Palk Bay and Gulf of Mannar, we have taken up mechanisation of vallams and country craft.

Q. What is the present stage of the proposal for setting up a national marine park in the state?

A. There is a proposal for setting up of a national marine park at Krusadai. The Government of Tamilnadu has recently constituted a committee under the Chairmanship of Mr. B. Sivaraman to give a report on the subject.
Contd. on P. 16

Cage Culture - Thai Style: Has Great Potential in India - Says Engvall

Mr. Lars O. Engvall is the Chief of the Bay of Bengal Programme which is executed by the Food and Agricultural Organisation of United Nations and funded by the Swedish International Development Agency. It covers five countries that border the Bay of Bengal i.e. Bangla Desh, India, Malaysia, Sri Lanka and Thailand. The headquarters of the project is located in Madras. The Bay of Bengal programme commenced its activities in 1979 and the project ends in December 1983. The main aims of the programme are to develop, demonstrate and promote appropriate technologies and methodologies to improve the conditions of small scale marine fisher folk and the supply of fish from the small scale sector to local population in the member countries.

Your editor had the opportunity to put a few questions to Mr. Engvall on certain aspects of the programme. The session went as follows:

Q. Bay of Bengal Programme has successfully demonstrated pair trawling from small boats in Tamilnadu. What steps are being taken to extend the technique to other areas?

A. BOBP assistance to extend the technique among Orissa fishermen has already started. It is proposed to extend this technique to other areas through national agencies. CIFNET has already taken up a training course in this regard in Gujarat. There is a demand for the introduction of this technology among Andhra Pradesh fishermen. CIFNET is expected to undertake similar training courses as now under way in Gujarat in this state very soon.

Q. We understand that experiments in pen culture conducted in Killai waters in Tamilnadu have been found to be successful. What further is proposed to be done?



MR. LARS O. ENGVALL

A. Pen culture experiments in Killai waters are still in progress. They are going on very well. The first experiment was conducted with tiger shrimp. The growth was very good. The second experiment was conducted with white shrimp. As the salinity was low, the growth of the shrimp was also less. One deterring factor in pen

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culture operations is the crab menace. We are trying to overcome this by using for the pens webbing of thicker dimensions. The encouraging results with tiger shrimp pave the way for the extension of the technology. The Tamilnadu Fisheries Department is considering proposals to introduce the techniques in other areas also.

Q. There was a report sometime back that BOBP will be undertaking experiments in shrimp culture at Polekurru in East Godavari District of Andhra Pradesh, in a farm provided by the District Rural Development Agency of the East Godavari District. Can you throw some light on this?

A. The DRDA has allotted to us a 15 ha. farm area at Polekurru for undertaking experimental work in shrimp culture. The design of this farm was prepared jointly by us and the DRDA. This is based on Indonesian design with a few modifications. The construction is expected to be completed shortly, and hopefully, we may commence the experiments in April 1983.

Q. Has there been any follow-up action after the successful operation of surf boats at Uppada in Andhra Pradesh?

A. The results of operation of the three surf boats introduced were very encouraging. The local fishermen have expressed preference for slightly bigger boats. The design has therefore been changed and work is under way for the construction of somewhat larger boats.

Q. Do you think that the high opening trawl is the best for adoption on the east coast throughout the year?

A. High opening trawl are not the best all the year round. These are designed to catch more of

fish than of shrimp. Therefore it is desirable to use the traditional type of nets during the shrimp season. In the rest of the year high opening trawls will prove to be good.

Q. What are the activities taken up by the Project in Thailand?

A. The request of the Thailand Government was for the development of aquaculture for fin fish. This Programme is progressing very well in that country. The main line taken up was the introduction of cage culture. There has been an explosion in the activity. The main species of fish cultured is sea bass. However the price level of sea-bass seed released from hatcheries is the critical factor in the economics of cage culture there.

Q. Do you think this technology can be introduced in Indian waters?

A. I believe that introduction of cage culture in Indian waters has a great potential. The Thai fishery experts can come to India and demonstrate the technology.

Q. How is the progress under the Project in Sri Lanka?

A. Beach landing craft were introduced. However, of late, it is seen that catch per unit from these boats has been coming down. This is a problem at present and we are exploring the possibilities of introducing trap, long lining and gill netting techniques. Fish aggregation devices, 6 nos. have also been introduced in early November 1982. 300-400 frigate mackerel, 100 nos. of yellowfin was caught at these devices recently. These results are encouraging.

Sri Lanka is getting interested in aquaculture. Possibilities of introducing pen culture are now being explored.

Q. Have you examined the possibilities of introducing fish aggregation devices around Andamans?

A. We propose to try this around Andamans this year. I expect to discuss this with the Director of Fisheries, Andamans soon.

Q. How about the progress in Bangla Desh?

A. At present, in Bangla Desh, fishermen use nylon twine of the same diameter as they use in cotton nets. We are therefore making efforts to improve their material by introducing nylon twine of the right diameter. We have introduced dol nets from Gujarat in Bangla Desh recently. We are also trying to improve the design of bag-nets in Bangla Desh. 40% of the marine fish catches in Bangla Desh comes from bag nets. They however have an inadequate number of fishing boats. Efforts are on to assist them in increasing the number of boats.

Q. I understand that BOBP assists in the setting up of experimental shrimp farms in the areas of member countries? Is it correct?

A. Yes. We are setting up experimental shrimp farms in Malaysia, India and Bangla Desh. In Malaysia, the entire expenditure on the farm is borne by the government. In Bangla Desh and India land is given by the government and the cost of construction is contributed by BOBP.

Q. If the BOBP comes to an end in December 1983, how is it proposed to provide for the continuation of the activities?

A. There is a proposal to extend the duration of the project and it is likely to materialise.

Q. It is stated that BOBP is assisted exclusively by Swedish

International Development Agency. I however understand that there is also a FAO component of assistance. In this correct?

A. In addition to the SIDA funding to the project, there is a UNDP FAO component called 'Marine Fisheries Resources Management' in the BOBP. This is a 4-year project which started from January 1983 with an outlay of US \$ 900,000. This consists of one senior fishery biologist and a few special investigators. The Headquarters of the project is located in Colombo and its activities are integrated with the BOBP. It is proposed to take up the work in the Palk Bay and Gulf of Mannar first. Representatives of Sri Lanka and India have to sit together and discuss the various aspects in the first instance. A study group is proposed to be set up in this regard. This management programme functions in cooperation with the Bay of Bengal Committee in the monitoring of the resources of the area.

Overseas Development Agency of U.K. has offered to provide funds to the extent of US \$ 300,000 for a 2-year period commencing from April 1984 to undertake work connected with the post harvest technology i.e. handling, processing and marketing of fish. This project would not be implemented through FAO, but directly executed by ODA, U.K. with suitable integration with the work of the BOBP.

Contd from P. 13
Interview with Sankara Subbalyan

Representatives of CMFRI, ZSI, University Zoology Departments and others are the members. The committee is expected to meet shortly.

Q. Have you assigned any specific role to fishermen's cooperatives?



A. Our intention is to channelise such fisheries schemes as are amenable through fishermen's cooperative structure. We have a scheme to start with, to encourage fishermen's cooperatives to undertake operation of mechanised boats in a very big way. While the Cooperatives will manage, the operations will be through groups of fishermen who will get a share of 60% of the sale proceeds. Allotment

of mechanised boats to individuals would be given up. The fishermen's cooperatives in the state have availed of substantial assistance from NCDC, Rs. 73 lakhs in 1980-81, Rs. 25 lakhs in 1981-82, and Rs. 100 lakhs in 1982-83, mainly for the acquisition of mechanised boats, nets and vehicles for transportation. The assistance was by way of 80% loan and 20% subsidy.

NEWS NATIONAL

MASSIVE RETIREMENTS IN A.P. FISHERIES DEPT.

Consequent to the recent orders of the Government of Andhra Pradesh reducing the age of retirement from 58 to 55, a large number of officers in the state fisheries department have retired from service at the end of February 1983. These include several joint directors, deputy directors and assistant directors. Besides these several inspectors

and others have also been retired. It is feared that the massive retirement will create a vacuum for some time to come.

AIFI TO CONDUCT SEMINARS

It is understood that the Association of Indian Fisheries Industries would be conducting a seminar on 'Tuna fishing in Indian waters' and another seminar on 'Design of engines to be installed in fishing vessels' taking into account the need for saving the fuel costs, in the near future.

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DEVELOPMENT OF BEACHLANDING BOATS

R. RAVIKUMAR



AN ALUMINIUM BOAT DEVELOPED BY FAO/SIDA BAY OF BENGAL PROGRAMME (BOBP) UNDERGOES SURF TRIALS AT THE MARINA, MADRAS. THE BOBP IS TESTING AND DEVELOPING BOATS IN TIMBER, PLYWOOD, FIBREGLOSS AND ALUMINIUM FOR TAMILNADU, ANDHRA PRADESH, ORISSA AND KERALA IN INDIA AND FOR SRI LANKA

The bulk of marine catches in India are landed by traditional boats operating from open beaches; there are dugouts and planked boats on the east coast. In Sri Lanka too there are several thousand kattumarams and dugout outrigger canoes.

These craft are mostly non-motorised, relying on sails and oars for propulsion. They are mostly engaged in inshore fishing using a variety of fishing gear, ranging from driftnets to lines.

Many of these craft have obvious disadvantages-- limited mobility

and low gear carrying capacity -- and offer little protection to crew and catch. One big advantage of course has been their low initial cost, through the price of dugouts and kattumarams has been increasing steadily due to a shortage of suitable softwoods.

The first apparent solution to improve the fishing ability of these craft is to motorise them. Several attempts have been made, but a majority were unsuccessful. Why? as inshore fishing boats of limited capacity, the added earnings were not commensurate with the cost of fuel. Only in those areas where

motorisation has increased considerably, e.g., large canoes, has this solution been accepted and one can see examples in Kerala, (Thanguvallam) and in Gujarat. There are also technical problems in motorising many of these craft. The mounting of the engine is one and its protection when going through the surf is another.

Another solution is an altogether new craft without the disadvantages of the traditional ones. The main problems facing the designers are the surf through which most boats must operate and the handling of the craft on the beach.

The FAO SIDA Programme for the Development of Small-Scale Fisheries in the Bay of Bengal (BOBP) has launched a concentrated attack to solve the problems. Progress and experience to date are summarized in this paper.

NEW CRAFT

After observing traditional boats operating from the beach in Andhra and Tamil Nadu states, four designs were made and prototypes constructed. Their main features are summarised in the table I on the next page.

These boats were surf-tested at Ennore in May 1980 with the assistance of a surf specialist from Australia. Fishermen from Andhra Pradesh and Tamil Nadu participated in the trials. While the Nava fishermen from Andhra preferred IND-13, the local kattumaram fishermen preferred the IND-11.

In both cases similarity to their traditional craft seemed to be the main reasons. IND-10 and IND-14 were considered unsuitable due to handling problems on the beach.

From the onset, the use of a low-powered diesel engine was considered to be an important factor due to the obvious advantages of low running cost. Conventional inboard installations



A BOAT DEVELOPED FOR TAMILNADU BY THE FAO/SIDA BAY OF BENGAL PROGRAMME (BOBP) UNDERGOES SURF TRIALS AT THE MARINA IN MADRAS. THE BOAT IS IND-21, A KATTUMARAN-TYPE MOTORIZED BOAT WHICH CONSISTS OF POLYSTYRENE BLOCKS ENCLOSED IN A NON-WATERTIGHT SHELL. SOME 30 BOATS OF THIS TYPE ARE TO BE INTRODUCED BY THE TAMILNADU GOVT. IN INJAMBAKKAM, SOUTH OF MADRAS

of a diesel engine would not be suitable for beachlanding boats due to possible structural damage of the appendages (propeller, rudder and skeg) while landing on the beach. The system used was a pivoting watertight box housing the engine

which enabled the propeller and rudder to be lifted into a well. This principle proved very successful.

In beachboat operations, one cannot rule out the possibility of a capsize. To protect the engine from

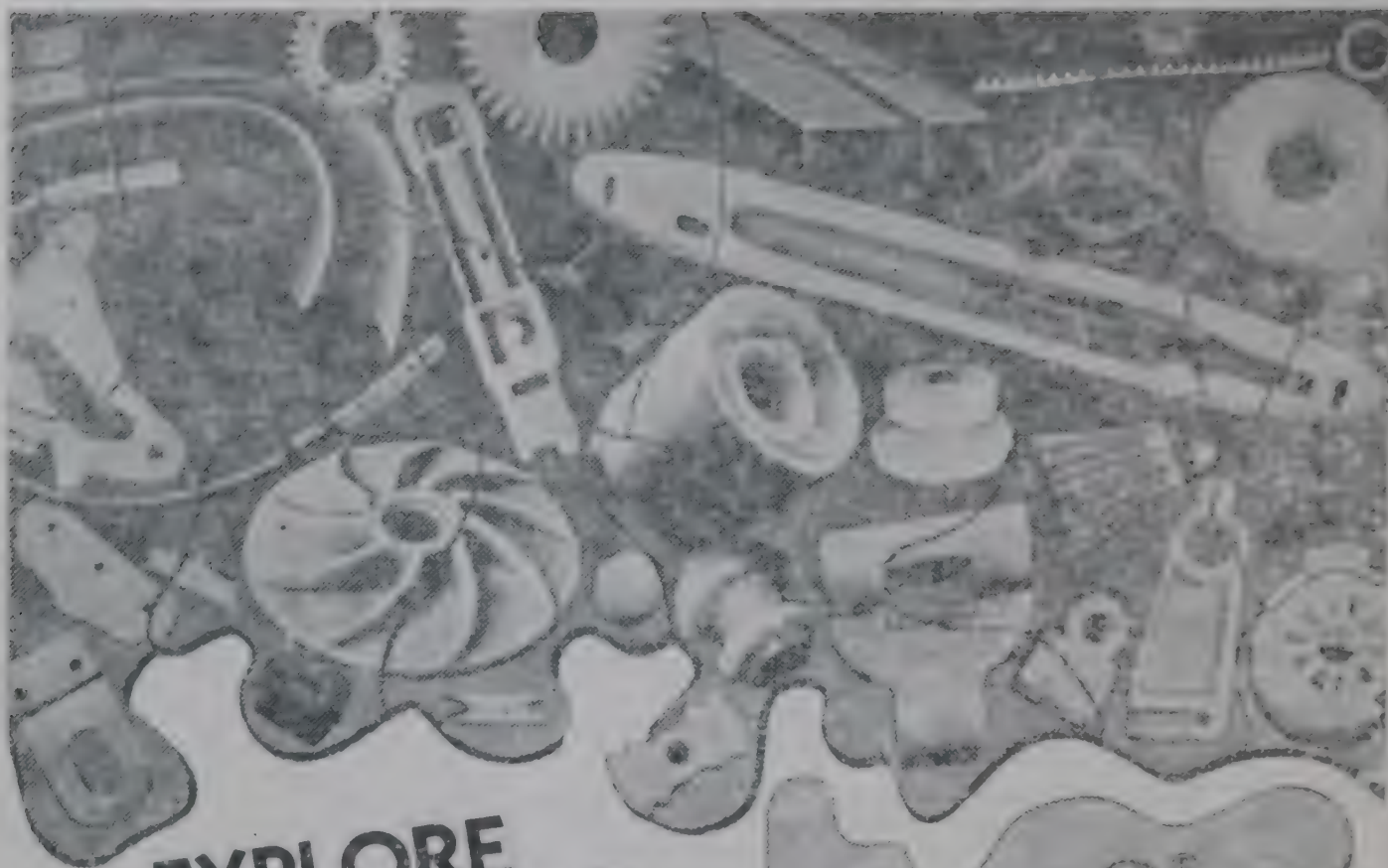
major damage, a special lid was designed to limit entry of water into the box. It proved successful too; in one of the initial runs the IND-11 capsized and righted itself and the engine was not flooded.

The next phase of beachcraft development was to evaluate the commercial feasibility of such boats. To this end, three boats of the IND-13 type were constructed and put under commercial fishing trials at Uppada, Andhra. These boats were equipped with large-mesh driftnets of an amount normally carried by a large nava, and operated by three teams from the area. Trials over a period of nearly two years revealed several valuable results in terms of boat size, layout, engine and stern gear wear and tear. They were mainly the following:

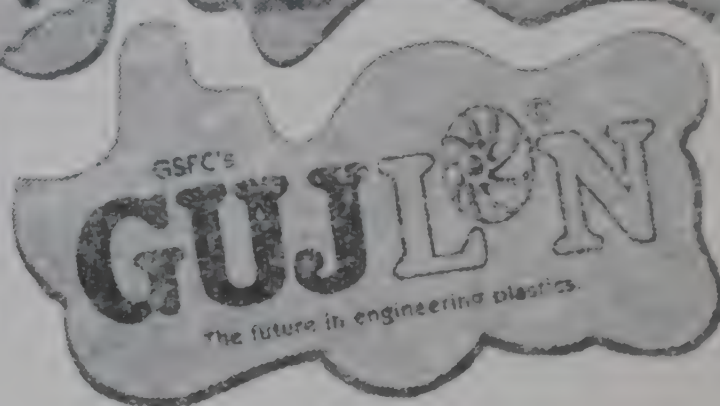
- a) the length of the boat had to be increased to provide more crew protection and improve net handling;
- b) the 5 hp engine could not stand up to continuous duty at full power and improvement to make it more suitable for marine use is a must; and
- c) 5 to 6 hp was adequate power;

TABLE I

Craft	LOA×B×D (m)	Type	Construction	WT.	HP.
IND - 10	7×2.45×0.85	Decked with large hatches	Strip-planked bottom seam bottom slides	920 kg.	4.8
IND - 11	7.4×2.25×0.72	Dish decked	Buoyancy blocks and planked non-watertight shell	800 kg.	4.8
IND - 13	7.4×2.25×0.72	Decked with large hatches	Plywood with FRP covered seams	760 kg.	4.8
IND - 14	7.2×2.70×1.0	Twin hull with batten deck	Plywood hulls	600 kg.	.8 (OBM)



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d) problems of shaft and bush wear due to sand abrasion had to be solved.

While these trials were in progress, BOBP developed a second generation of craft for India and Sri Lanka. These incorporated changes in hull shape to improve speed, the use of modern sail rigs, improved engine installations and new material for construction. The boats for Sri Lanka were made comparable in size to the standard 3½ tonner and were designed with a more conventional deck and net hold arrangement.

These craft are summarised in Table II

BEACH HANDLING

All of these boats (except IND-10 and IND-14) have been successful in surf crossing and landing and are undergoing commercial fishing trials. The smaller IND-21, IND-23, and IND-17 are suitable for day fishing operations.

The IND-20, SRL-11, and SRL-12 can be used for longer operations. All these boats can handle drift nets and line fishing gear. The SRL-12, owing to a highly efficient propulsion system, can be used for either single-boat or pair-boat trawling in shallow waters.

Development of methods to handle boats on the beach must go hand in hand with boat development. During the 1980 surf trials, a hand capstan was tried to haul up the boats with and without rollers. For the second generation of boats, which are bigger, a diesel engine driven winch was tried out successfully. It was noted that the pull required to haul boats without rollers was as much as the weight of the boat. However, there are problems still to be solved; techniques of launching larger boats, have to be found.

MATERIAL

Plywood was used for the prototypes in most boats. The longevity of boats so built is unknown. Boats built in plywood seem to be in good condition after two years.

Timber used for planking and frames was Ayni. The quality has been very poor due to lack of screw holding lower and structural weakness. For future boats one should look into this problem and ensure availability of top-grade timber.

FRP as a material is well known and can be a suitable material for mass production. However, its abrasion resistance being poor, care has to be taken in protecting the bottom.

Aluminium has been tried out. The alloy obtained was not of the right hardness and problems of cracking were noticed in some times. The argon gas available in the market was not consistent in purity resulting in bad welds. However, as a light and tough material it has not rivals, and hence would seem to be the ideal choice for beachboats if the above-mentioned problems could be solved. MIG welding equipment in India is expensive but TIG can be used, though it involves more labour. One other big advantage with aluminium is its scrap value.

ENGINE INSTALLATIONS

5 hp/ton of displacement was found adequate for these boats to permit a speed/length ratio of 1.2 in a seaway. Lack of appendages, flat runs aft, high LWL/LOA ratio, and lightness are some

reasons for the good speed performance of aft, high LWL/LOA ratio, and lightness are some reasons for the good speed performance of these boats.

Till now all engines used were air-cooled. There have been problems such as frequent loss of oil seals, starting trouble due to injector problems and loss of compression. Structural failure of some components due to vibration was quite common. The overheating of the engine in the box is a matter of serious concern.

The use of a higher powered engine derated to run at a lower RPM and trials with watercooled engines constitute the next objective.

The use of a reduction gearbox (5:1) in the SRL-12 fitted with a 14.5 hp engine resulted in a thrust of 210 kg. This clearly indicates the possible gains one can expect in propeller efficiency and the resulting savings in fuel and initial engine costs.

The sterngear for these boats had problems of shaft and bush wear due to sand abrasion. Cutlass rubber bearings, though acceptable, posed problems of sand entry into the tube resulting in wear at the stuffing box end. The latest system incorporates a grease-filled stern tube, a replaceable shaft sleeve in the way of the stern bushing and a grease-retaining ring keyed to the propeller and shaft.

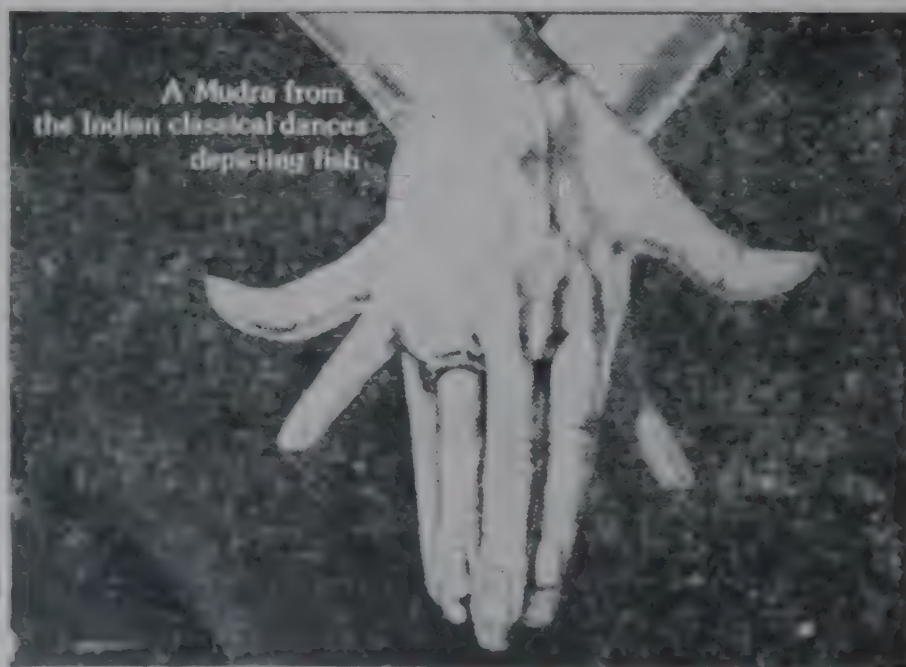
SAIL

All BOBP boats are equipped with sails. Trials with various rigs, viz., lug, lateen, bermuda and gunter rig have been carried out. A

Table II

CRAFT	LOAxBxD	(m)	TYPE	CONSTRUCTION	WT	HP
IND- 17	7.8x1.94x0.75		Decked with hatches	Plywood	500 kg.	Sail & oars + 8hp OBM
IND- 18	8.4x2.24x0.76		Decked with hatches	Plywood	945 kg.	4.8
IND- 20	8.48x2.28x0.83		Decked with hatch	FRP	1150 kg.	8
IND- 21	7.50x2.3x0.76		Dish-decked	Polystyrene buoyancy blocks in a planked non-WT shell	920 kg.	8
IND- 23	7.0x2.0x0.64		Dish-decked with hatch	Aluminium	620 kg.	8
SRL- 11	8.0x2.6x0.96		Conventional deck with hatch	Plywood	1540 kg.	12.5
SRL- 12	8.50x2.6x0.96		Conventional deck with hatch	Plywood	1510 kg.	14.3

Fish has always been there in our past. It will always be in our future.



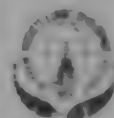
A Mudra from the Indian classical dances depicting fish.

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suitable cotton sail cloth manufactured in India has been identified. To counter leeway, all beachboats have been provided with dagger boards. These boards were found to be very effective roll dampers too.

No firm conclusions can be drawn as to the extent of fuel saving by judicious use of sail. Fuel cost in proportion to the catch value has been as low as 10% in the Andhra trials. However, all fishermen who have been using these boats used the sails with and without the engine when the wind was favourable. The point to be borne in mind is that the

designs need to be suitable for sail as the emphasis on all may become stronger when fuel costs get to be a major running expense.

COSTS

At this stage it is difficult to put a price on most boats as they

are prototypes and not built commercially. Factors like mass production of components, overheads, profit margins of commercial boatyards, prices for bulk supply of raw materials, excise duties, etc., will have to be considered. Some indicative figures are given below:

COST. (Rs.)

Boat No.	Hull	Engine/ S. Gear
IND - 20 FRP	42,000	15,000
IND - 21 Wood	25,000	15,000
IND - 23 Aluminium	30,000	15,000

Indian waters abound in fish and Britannia has entered fishing as part of the national policy to organise a more scientific exploitation of resources in future. Catches are landed in seafresh condition and speedily processed to preserve the natural product quality.

The Britannia fleet of 6 trawlers includes two modern 23 metre steel vessels imported from Mexico. It is proposed to augment the fleet in a phased manner, and possibilities of entering the field of deep-sea fishing are being explored currently.

Supplementing these efforts at sea is a programme of developing brackishwater prawn culture and Britannia is among the pioneers investigating this area. The objective in both cases is to secure the freshest and best quality raw materials.

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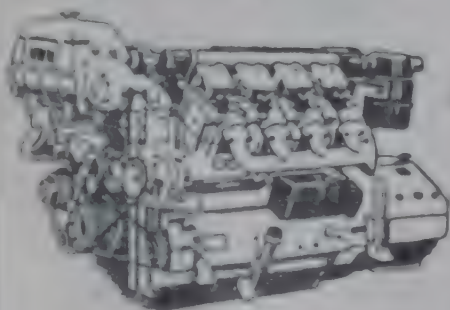
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4DAY CHRONICLE

VISAKHAPATNAM:

Shrimp landings from both mechanised boats as well as trawlers came down considerably. While the landings from trawlers went down gradually to a level of 1.5 tons per voyage, catches from mechanised boats became insignificant. In the first week of March 1983 one of the trawlers of Marine Fisheries Pvt. Ltd. landed a catch of 1.750 tonnes, highest since the last week of February 1983.

On account of the poor catches, several mechanised boats shifted their operations to Kalingapatnam and Orissa coasts where the fishing was stated to be far better than in Visakhapatnam area.

The price of shrimp reached the highest level for some time during the month. Tigers fetched a price of Rs. 142.50, Whites Rs. 139/- and Browns Rs. 89/- per kg. Towards the end of February the prices fell down to a level of Rs. 129/- per kg. for tigers,

Rs. 124/- per kg. for whites and Rs. 64/- per kg. for browns. However, there had been some recovery in the 1st week of March in respect of trawler landings. Tigers fetched Rs. 142/- per kg. whites and flowers fetched Rs. 132/- per kg. and browns fetched Rs. 83.50 per kg.

Two wooden trawlers of about 50 ft. length constructed at a Mangalore boat building yard and being operated by skipper owners, have attracted the attention of several entrepreneurs. The cost of each of these boats is stated to be around Rs. 8 lakhs. Impressed by the encouraging shrimp landings by these vessels several entrepreneur have taken steps to acquire similar vessels. These vessels are able to stay out at sea for about seven days.

The problem of fisherwomen engaged in fish drying in the fishing harbour area has not yet been resolved and the Port Trust has not found a solution acceptable to the fisherwomen. The

fisherwomen want that they should not be sent out of the fishing harbour, where they have been drying their fish for quite some time past. They say that they are in readiness to pay rental for the sites used. Their complaint is that their leaders have cheated them to a tune of Rs. 1.5 lakhs. How far this is true is not known. They say that these leaders have now almost given up helping them, probably because of the change in the government in the state.

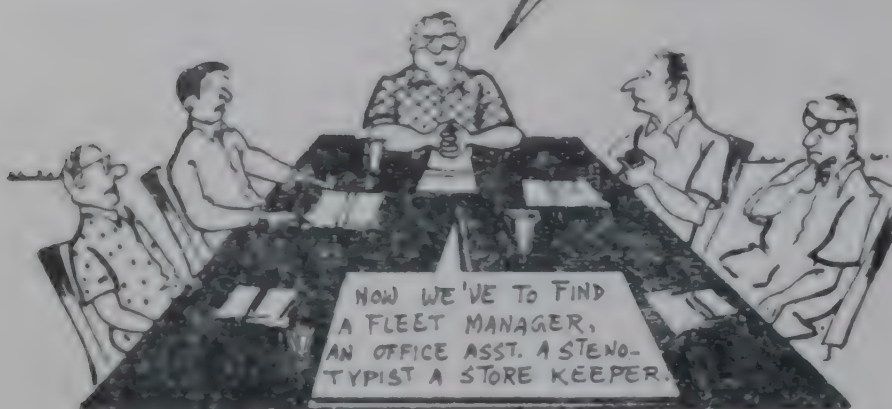
Mr. B. K. Rao, Director General of Shipping Bombay, visited Visakhapatnam recently. During his visit he held discussions with the representatives of fishing companies and leaders of workers on fishing vessels. The discussions were held based on several representations received from labour union leaders by the Director General of Shipping that some of the fishing companies were exploiting the workers. Mr. B. K. Rao met the union leaders first and later held discussions with the representatives of fishing companies. Mr. Rao was critical that the fishing industry had not taken any steps for regulating the working conditions on its own, while the unions had taken steps in this respect. He was surprised that the owners of fishing vessels had been keeping quiet on the subject. He suggested that the AIFI may send to him the draft rules on the subject for examination with a view to including the same in Chapter-XIII of the Merchant Shipping Act.

The problem in regard to the working conditions of the workers on trawlers is that they do not come either under the provisions of the Merchant Shipping Act or the Labour regulations. It is however felt that the subject comes nearest to the provisions under



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the Merchant Shipping Act, although it does not fully cover the requirements. Employment on fishing vessels is in the nature of a full time occupation covering officers and crew.

It will be recalled that a high power committee to consider the subject was set up by the Union Dept. of Agriculture one year back. It is understood that the recommendations of this committee are now under consideration of the Dept. of Agriculture.

It is stated that Mr. B. K. Rao felt that, in order to provide redressal to the grievances, there should be a well knit procedure. Under the Merchant Shipping Act, no such machinery exists at present in regard to the workers on fishing vessels. He felt that, therefore, a channel must be created for resolving the grievances ending with a tribunal. Under Section 150 of the Merchant Shipping Act, the Director General of Shipping, is empowered to formulate such a procedure, although such rules have to be approved by the Ministry of Shipping and Transport and notified in the gazette. It is stated that the duration of working hours of

the officers and crew is the crux of the matter. Once the fishing industry provides a draft set of rules taking into consideration the points of view of the union leaders, it would be possible for the Director General, Shipping to notify the rules.

KAKINADA:

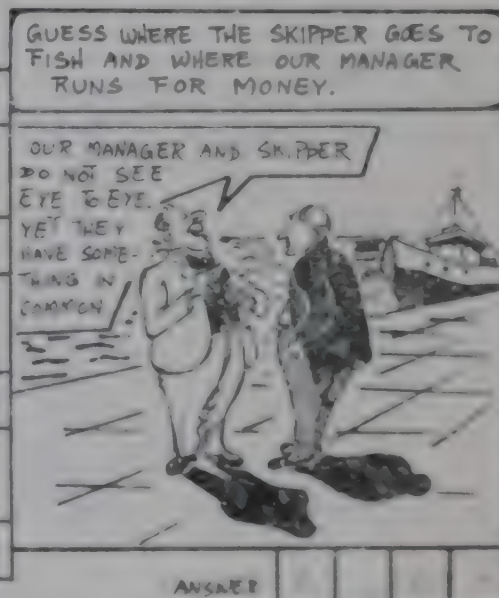
It is understood that M's East Coast Boat Builders, Kakinada have now revived their arrangement for the construction of fishing trawlers at their yard in collaboration with Damen Shipyard, Holland. The authorities of the shipyard are stated to be now actively engaged in bringing the collaboration arrangement into actual implementation. Two engineers from Damen Shipyard are stated to be in Kakinada to guide the management. The Indian shipyard's proposal is to build 23.50 m. long shrimp trawlers obtaining the various parts in a knocked down condition from Holland and later assemble them at the yard.

The mechanised boat operators of Kakinada are known for their

FISHERMEN'S JUMBLE

These words are as unsorted as a fish haul. Restore them to the correct order, with each letter to a square. After this, arrive at

the answer by adjusting the letters in the 'fishes', deriving clue from the sketch alongside. Answer on p. 37.



enterprising and adventurous spirit. They migrate according to seasons to places such as Machilipatnam, Nizampatnam, Krishnapatnam, in the South and in the North to Kalingapatnam, Paradeep and Astarang. This year they have adopted a system of operating their boats all along the north-east coastline, without bothering about the availability of landing and berthing facilities and sources of fuel supply around. An arrangement for getting fuel from time to time and for securing food items at certain points has been made by them. They have started anchoring their boats at various points after the conclusion of fishing operations. The catches are transferred from convenient places through catamarans or navas. It is stated that at Astarang the local mechanised boat operators association gave a lot of trouble to them. On account of this, they shifted their operations to Ganjam and Gopalpur, also adopting the system of anchoring their boats close to the coastline and transferring the catches through catamarans. Some of these are stated to be operating from Barua, Nuvularevu and other places. Vans run by the processors are collecting shrimp catches from various points.

It is reported that catches from these mechanised boat operating at Ganjam and Gopalpur are very encouraging, each boat landing

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I, J.V.H. DIXITULU, do hereby declare that the particulars given above are true to the best of my knowledge and belief.

Visakhapatnam
1st March, 1983.

Sd. J.V.H. DIXITULU
SIGNATURE OF PUBLISHER(S)

30-40 kg. of shrimp and fish worth Rs. 300-400 per day. Their daily earnings are stated to be around Rs. 3,500/-.

CALCUTTA:

Culture shrimp season at Calcutta has started in the last week of February 1983. Upto 28th February the total landings were stated to be 22 to 25 tons, the value being Rs. 138/- per kg. The next round

of exploitation is expected to commence on 10th March 1983.

OTHER CENTRES:

Catches at Balugaoan and Paradeep are very poor. So is the case at Mandapam/Cuddalore. At Porbunder pomfret catches are moderately good, bringing 100-200 kg. per boat.

The following are the procurement prices for shrimp at various centres as on 1st March 1983.

Rupees per kg.

Item	Visakhapatnam		Kakinada		Calcutta		Balugaon	
	Mech. boats	Trawl-ers	Mech. boats	Trawl-ers	Mech. boats	Trawl-ers	Mech. boats	Trawl-ers
Tiger	—	142	108	—	138	—	91 (HO)	—
White/F1.	120	132	82	—	—	—	—	—
			26 (Med.)					
Brown	80	83.50	32 (HO)	—	—	—	—	—
PUD material (Poovalan etc.)	—	—	6	—	—	—	12.50	—

FIFTH INDIAN SEA FOOD TRADE FAIR

TAJ COROMANDEL HOTEL, MADRAS, FEBRUARY 11, 12 & 13, 1983
U.S. IMPORTERS IN CONGENIAL MOOD

The Fifth Indian Sea Food Trade Fair held from 11-13 February 1983 at the Taj Coromandel Hotel, Madras, was a resounding success. It was attended to by a large number of foreign delegates, particularly those from Japan, U.S.A. and Western Europe. The activity during the Fair reflected a great understanding between exporters and importers. There was a general recognition among the foreign delegates in regard to an astounding improvements in the quality of marine products exported from India. The star performers among the foreign delegates were Mr. Minoru Makihara, Vice President, Japan Marine Products Importers' Association, Japan, Mr. Noel J. Blackman, President, Shore Lobster and Shrimp Corporation, New York, Mr. Bernard Farber of Far Port International, New Jersey, U.S.A., Mr. Henry R. Branstetter noted fishery consultant, La Jolla, California, U.S.A., Mr. Phil. W. Appleyard, international fishery expert and consultant, U.K., Mr. Pierre Hottlet of N. V. Pierre Hottlet & Co. Antwerp, Belgium. The moving spirits behind the exceptionally successful organisation of the Fair were Mr. S. N. Rao, Chairman and Director, Marine Products Export Development Authority (ably assisted by his various officers), Mr. C. Cherian, President, Sea Food Exporters' Association and Mr. T. M. Joseph, Vice President, Sea Food Exporters' Association (Madras Region).

MORE STALLS

There were 40 stalls in the stall lay-out. There was a heavy rush of visitors on all the three days. Of particular interest in the stalls were those of M/s George Maijo, where 'Yamaha' out-board motors and mini generators and a carton packing machine were exhibited, of M/s Salmocid GmbH of West Germany where a chemical by name 'Salmocid' which is stated to have the properties of completely eliminating salmonella and other bacteria from shrimp and other marine products was put on display, of M/s Three Crescents Exports Ltd. who exhibited 'Suzuki' out-board motors, and of M/s Vulcan Laval who exhibited 'Baadar' bone and meat separators. There were also stalls where horizontal plate freezers of M/s APV Parafreez and Vijaya Deep Freezers of M/s Vijaya Refrigeration Centre, Madras were exhibited. There was also good response from the public sector undertakings. The Kerala Fisheries Corporation, Tamilnadu Fisheries Development

Corporation, Andhra Pradesh Fisheries Corporation of India, etc. The stalls of integrated fishery council of India were also manned by Indian Fishery Industry members i.e. Nav Bharat Sea Foods presents of 'Fishing Chimes' various stalls, there

ABSENCE OF AGRI

The fair was inaugurated by the Minister for Finance also declared the export of the Fair was that the Agriculture, Delhi. The Fourth Indian Sea Food Fair, CIFNET, and the D present although t

HIGH LIGHTS

One high-light of the fair was that the USA had agreed to provide documentation relating to the fair in time, so that the Indian side. Another high-light was that the Government of India had said that this would help to reduce prices on account of reference to US dollar.

A serious omission was the steps necessary for the exception of the fair made by Mr. Appleyard regard to the introduction of indigenous construction no discussion on it

FAIR

1983

Fisheries Corporation, Shipping and Trade Trading Corporation set up stalls. project and export inspection For the first time the Association of a stall where the individual loys, Tata Oil Mills and Srinivasa s. The various back numbers ibited. Topping the of MPEDA.

MEN

Mr. V. R. Nedunchezhiyan, s, Government of Tamilnadu. He One dampening feature of presentation from the Ministry of as also noticed during the air held in 1981. However, the Director, grated Fisheries Project were

ings was that the importers from ssibilities of sending full ous complaints regarding quality oughly investigated from the as the suggestion of Mr. Cherian ould favourably consider the l exports to Japan based on Yen. He present fluctuation in changes in the value of Yen with

ous discussions was in regard production of raw material. With ing remarks on joint ventures s practically no reference in units of fishing vessels either through or on charter. There was also



MR. V. R. NEDUNCHEZHEYAN, MINISTER FOR FINANCE AND FISHERIES, GOVT OF TAMILNADU, DELIVERING INAUGURAL ADDRESS

The inaugural function of the Fifth Indian Sea Food Trade Fair commenced at 11 a.m. on 11 February. Seated on the dais were Mr. V. R. Nedunchezhiyan, Minister for Finance and Fisheries, Government of Tamil Nadu, who inaugurated the fair, Mr. Vayalar Ravi, Minister for Home, Government of Kerala, Mr. C. V. Padmarajan,

Minister for Fisheries, Government of Kerala, Mr. Kironmoy Nanda, Minister for Fisheries, Government of West Bengal, Mr. C. Cherian, President, Sea Food Exporters Association, Mr. T. M. Joseph, Vice-President, Sea Food Exporters Association (Madras Region), Mr. Minoru Makihara, Vice President, Japan Marine Products Importers Association,



AUDIENCE AT THE INAUGURAL FUNCTION



MR. NEDUNCHEZHIAN DECLARING THE EXHIBITION OPEN

Japan, Mr. Bernard Farber, Far Port International, U.S.A., Mr. S. N. Rao, Chairman and Director, MPEDA, Mr. Manick B. Patel, General Manager, Taj Coromandel Hotel, Madras.

ANOTHER TIGER IN BENGAL

Mr. S. N. Rao welcomed the distinguished guests, various delegates and other invitees. He

said that the presence of Mr. V. R. Nedunchezhiyan showed his keen interest in the promotion of marine fishing industry and the stepping up of sea food exports. While welcoming Mr. Kiranmoy Nanda, he said that exports of marine products from West Bengal had been going up steeply of late. He added that while West Bengal was traditionally famous for Bengal Tiger, today it was equally

famous for Tiger Shrimp. Referring to Mr. Vayalar Ravi, he said that it was fortunate that he could make it convenient to attend the function. He was happy at the presence of Mr. Ravi who had been having long association with the marine exports activity. Referring to Mr. Cherian and Mr. T. M. Joseph, he said that they were the prime movers for the sea food fair. The re-election of Mr. Cherian for the presidentship of the Sea Food Exporters Association was a testimony to his great talent and qualities of leadership.

HALF KG OF INDIAN SHRIMP A YEAR TO EACH JAPANESE

In his speech, Mr. C. Cherian said that the presence of so many importers from abroad at the fair gave lot of encouragement to the Indian exporters. Mr. Minoru Makihara, while stating that Japan imported 1.54 lakh tonnes of shrimp, the Indian imports accounted for 40,000 tonnes annually. This would mean that each Japanese consumed $\frac{1}{2}$ kg. of Indian shrimp annually. In a lighter vein, he said that in Japan, shrimp was considered to be a very lucky thing. In olden days Japanese people used to have a hunch like what a shrimp had and there was a relation between this and attribution of luck to the consumption of shrimp. Mr. Bernard Farber was happy to have the opportunity to exchange views with Indian exporters and to build up a better future in the matter of shrimp trade. He was confident that the fair would be a great success. He extended his congratulations to MPEDA and other organisers for making it possible for all of them to be in Madras. Mr. Kiranmoy Nanda, said that there were 50,000 acres of water area under shrimp cultivation in West Bengal. There were 34 sea



GEORGE MAIJO'S STALL AT THE EXHIBITION

food processing units in and around Calcutta. He invited all the delegates from Japan and USA to visit West Bengal and see the progress achieved. Mr. Vayalar Ravi called upon the exporters to maintain the quality. He assured the importing countries that the Central government gave top priority to quality control. Mr. C. V. Padmarajan hoped that there would be a good understanding between the importers and the exporters. He said that the aim of the Indian exporters should be to maximise the exports, keeping the quality aspect in view.

QUALITY, DIVERSIFICATION AND CULTURE

In his inaugural address, Mr. V. R. Nedunchezhiyan, while congratulating Mr. S. N. Rao, Chairman, MPEDA for successfully organising the fair in the city of Madras, said that India had vast marine fishery resources. The declaration of exclusive economic zone of India had given access to a vast fishery wealth for exploitation. He hoped that the Indian fishing industry would take this opportunity of the presence of foreign delegates and discuss with them the scope for the exploitation of these resources with their technology and other support. He told that any effort to develop fisheries in our exclusive economic zone should better the lot of the common fisherman. Stating that there was an excessive dependence on shrimp exports and that too for Japan and USA markets, he emphasized the need for diversifying our marine fish production and exports. He laid particular stress on the maintenance of rigorous quality in the exported products. Referring to the recommendations of the Task Force set up by the Government of India, he said that all those concerned should



MR. NEDUNCHEZHEYAN SPEAKING TO MR. S. M. SHUKLA, MANAGING DIRECTOR, GOLDEN FISHERIES (PVT) LTD. DELHI

cooperate in the implementation of the recommendations.

Mr. Nedunchezhiyan further said that in several foreign countries particularly in Equador and Panama considerable headway was made in regard to coastal

aquaculture. Similarly much progress had been achieved in the countries of far-east such as Malaysia and Philippines. India had vast brackishwater resources and there was immediate need to utilise these resources for shrimp production, he said.



MR. HENRY R. BRANSTETTER, MR. S. N. RAO, DR. W. PHIL. APPELYARD AND DR. WOLFGANG KRONE ON THE DAIS AT ONE OF THE BUSINESS SESSIONS

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Mr. Nedunchezhiyan presented awards to the winners at the 4th Indian Sea Food Trade Fair. He presented Rolling Trophy for the best stall of M/s Garware Nylons Limited, Bombay, and certificates for the second and third best stalls to American President Lines, Bombay, and M/s Brittania Industries Limited, Bombay respectively.

Mr. T. M. Joseph proposed a warm vote of thanks to the distinguished guests, delegates, invitees, and press, All India Radio, Doordarshan and the General Manager of the Taj Coromandel Hotel, Madras.

After the inaugural function Mr. Nedunchezhiyan formally declared the exhibition open and went round the various stalls together with the other distinguished guests.

APPLEYARD ON JOINT VENTURES

The first business session was held on 12 February in the forenoon. This session was to be devoted for discussions on credit facilities for joint ventures and exporters, the main speaker being Mr. R. R. Kumar, Chairman, Union Bank of India. However he could not attend the session. This was well compensated by the lively lecture delivered by Mr. Phil. Appleyard.

The other topic for discussion at the session was the outlook for sea food trade in south east Asian countries. A lecture on this topic was delivered by Dr. Wolfgang Krone, Project Manager, INFOFISH of FAO, Kuala Lumpur.

Mr. Appleyard advised the Indian entrepreneurs to be careful and realistic while opting for joint ventures. He said that 'motivation' of the parties was what

matters more. He wanted the entrepreneurs to make sure that the projects envisaged were 'compatible'. It was necessary to make certain that the foreign collaborator was not trying to get rid of his obsolete vessels in the name of joint ventures. He said that a variety of factors worked to make a joint venture successful and beneficial to both the joint venture partners. Effective communication between the parties was very important. Cultural aspects played a great part for the proper understanding between the parties, he said. He added that the general tendency was to acquire or sell any type of vessels available without making sure whether the vessels were suitable for operation in a particular area. The right type of vessels and equipment were as important as having the right type of partners and a proper working environment. Referring to a study of 500 joint ventures made by the Washington University, he said that the conclusions drawn therein were very depressing. He was also of the view that some of the foreign collaborators who came forward to develop ties with entrepreneurs in developing countries were often excessively greedy and underestimated the problems of the host entrepreneurs. He explained that there were however, several advantages in having joint ventures. One was the speedy introduction of technological and managerial knowhow, effective marketing mechanisms and also in several cases the inflow of capital to developing countries. He said that he was himself a joint venture promoter and his six vessels were in the developing countries helping the parties there for the development of deep sea fishing. Commenting on the role of the governments, he said that, on their part, they should adopt a flexible and constructive

approach without too much of interference. He was somewhat critical of the bureaucracy in developing countries like India. He however added that there were encouraging signs and change in the outlook on the part of the bureaucracy in India in regard to fisheries development.

Dr. Wolfgang Krone, Project Manager, INFOFISH of RAO, Kuala Lumpur dealt with the international market conditions relating to marine products. He referred to the fall in prices of tuna and said that there was no likelihood of improvement in this respect in the near future.

QUALITY, TRANSPORT

The second business session, which followed the first session was chaired by Mr. S. Gopalan, Joint Secretary, Ministry of Commerce, Government of India. The problems and prospects of exports of Indian marine products to Japan was discussed at this session. The distinguished foreign speakers at this session were Mr. Minoru Makihara, Vice President, Japan Marine Products Importers Association and Mr. Kowagoe, Director, Kasho Limited, Japan. Pointing out that India was the main source for import of shrimp by Japan, Mr. Makihara laid emphasis on further improvement of quality and timely shipments. There were also observations made Mr. Kowagoe concerning the need for conservation measures in respect of lobsters and the regulatory measures necessary to prevent other nations from fishing in Indian waters and for a judicious exploitation of these species.

Dr. Nambiar, Resident Director of the MPEDA in Tokyo explained the current situation in regard to export of marine products to Japan and assured full co-operation

and assistance in removing any problems which the Indian exporters faced.

CHERIAN ON YEN

Mr. Cherian made a very interesting speech. He said that business did not take place within the session, but outside. The Japanese and Indian representatives sat together at other places and negotiated deals. He referred to the problems caused because of the fluctuation in the value of yen in relation to the US dollar. This variation had often a disadvantageous impact on the Indian exporters. This had only to be experienced. As he had this experience, he said that he could talk on the subject authoritatively. Indian side could not blame the Japanese for the frequent fluctuation in prices on the ground that yen became weaker. He wanted to know whether yen was doing business or India was doing business with Japan in yen. In this connection, he suggested that the Government of India in consultation with the Japanese Government should arrive at system under which the exports could be made in terms of yen only without reference to the US dollar.

Referring to quality control, he said that there was no problem of quality control and it did not exist now. He was happy that an office of MPEDA was started in Tokyo and Dr. Nambiar, a veteran in the field and with sound knowledge of Japanese was posted there as the Resident Director. He was however unhappy that the Resident Director did not have adequate facilities. He said that the Japanese had excellent arrangements for getting information on the developments in the field from India in a timely manner. However, the Indian side did not enjoy the same facility

for flow of timely information from Japan, although there was the office of MPEDA. The Resident Director would be able to be of help to Indian industry in providing timely intelligence only when he was equipped with adequate staff and other facilities. He urged that the government should examine this and take urgent steps in the matter. Referring to the minor problems in the export of lobsters, he said that this could easily be resolved.

Mr. Gopalan, Chairman of the Session, said that he had taken note of various comments made and said that these would be examined and decisions taken thereon quickly.

AMERICANS ADVISE

The third business session relating to the problems and prospects of export of Indian marine products to USA was held in 13 February in the fore-noon. The session was chaired by Mr. M.A.K. Tayab, Secretary, Department of Industries, Government of Tamilnadu.

Mr. Noel J. Blackman, President, Association of Sea Food Importers, New York, President of Shore Lobster and Shrimp Corporation, New York, and Vice-President of Chamber of Commerce, New York, spoke on the occasion. He observed that a number of members of US delegations to Indian sea food fairs was slowly decreasing. Stating that he would like to discuss the problems of a broad nature, he said that there had to be proper coordination between the MPEDA and the Indian packers. He was glad to know that MPEDA would be opening an office in New York and that it would be headed by Mr. Haran. This was a promise made by MPEDA long back and he was happy that it had now

materialised. He hoped that this office would help in smoothening many things and would facilitate exports of marine products from India to USA with minimum problems. He was greatly concerned about the high degree of rejection of lobster tails. This was to be resolved soon.

Another USA importer advised that the Indian exporters may switch on to consumer packs. This would reduce the cost on the importer. At present, the American importers did considerable repacking to sell the Indian shrimp to American consumers.

Mr. Haran said that 70% of Indian exports in quantity and 13% of value were being made from India to USA. The decline in the trend started from the year 1976 onwards. One of the reasons for this trend was that Japan offered a higher return. The demand in USA was mostly for the peeled variety of smaller sizes. The american importers utilise the Indian food packs as industrial raw material for their processing plants for re-processing into consumer packs for sale in USA. During 1979-80 USFDA for the first time, said that the Indian shrimp was salmonella contaminated. There were several discussions thereon. It had been pointed out by the Indian side that only uncooked shrimp was being exported to USA and they were reprocessed and cooked before consumption by the US consumers. So, any salmonella present in the raw shrimp would naturally get destroyed while cooking. Subsequently there had been a phenomenal improvement in the quality of shrimp exported to USA from India. The FDA standards were being strictly followed while inspecting the materials on the Indian side. Care was also taken to ensure

freshness from the stage of catching shrimp. Various shore facilities were being increasingly provided to ensure quality. Several training courses were being increasingly provided to ensure quality. Several training courses were being held to ensure proper handling. Training programmes were also being conducted in USFDA methodology. As matter stood, the importers were generally happy about the quality. However the Indian exporters were not getting a good price. This was because of the continued block-listing of Indian exporters and the re-processors in USA were monopolising the US markets. Further, US insurance companies who used to extend huge insurance cover to importers of Indian shrimp, were now demanding a very high premium. This was very highly uneconomical and acted adversely. He added that there were also problems about Indian frozen froglegs and lobsters. A number of American companies expressed their desire to set up joint ventures in India particularly in regard to tuna fishing, he said. Some exporters in New Orleans had expressed their interest in the setting up of joint ventures for processing marine products in India for export to USA under their own brand names. This requires to be followed up. Considering the present trend of Americans in preferring to eat sea food in restaurants in an increasing manner, he felt that the period 1983-86 would see a far greater demand for shrimp in USA. Aggressive marketing techniques are necessary to cope up with the anticipated increase in demand.

EXPORT INSPECTION AGENCY

Mr. Dhameja, Addl. Director, Export Inspection Agency, pointed out that effective steps had been taken in India to ensure strict

standards of quality. In case of any complaint, he suggested that the American side, should immediately forward a full documentation on the complaint to the EIA for immediate action. On this Mr. Blackman said that full documentation of FDA reports on Indian consignments were being sent to MPEDA/Ministry of Commerce. He added that all future rejection notices would be sent through the Indian Mission in New York. Mr. Dhameja said that the Ministry of Commerce had laid down a specific procedure for dealing with complaints in regard to quality. There were regional committees to attend to such complaints. Any complaints received would be thoroughly scrutinised by these committees. The concerned exporter would explain his stand before the committee and take a final decision.

It is pointed out by the Chairman, MPEDA that all the complications arose because of the continuance of the Indian block list by USFDA. Since it was stated that there would be no more block listing, it would be desirable to neutralise this.

Clarifying the position further, he said that there were instructions to MPEDA that in case of any complaints received, a high level panel should go into them and check up the various details. Thereafter MPEDA would bring the matter to the notice of the EIA. If MPEDA was satisfied that there was some mistake on the Indian side, the matter would be placed before the regional committee concerned. He said that the foreign side should assist the MPEDA by providing them with timely documentation. Now that there would be a representative from MPEDA in New York, it would be desirable to work out a

procedure to deal with this problem through mutual consultation. He assured that, once a complaint came to them, they would go into it thoroughly and come up with a reply very fast.

INDIAN EXPORTER NOT ALWAYS AT FAULT

Mr. K. Chidambaram said that the complaints made were not always to be related to the Indian exporters. When he was the Director of MPEDA, there was a complaint from Canada. The Canadian Inspection Agency rejected a consignment of canned shrimp stated to have been manufactured at Cochin. The code was checked and it was found that it was not manufactured in Cochin at all. It was later noted that the shrimp that was canned was caught by a Russian vessel and taken to Cuba, packed there and exported to Canada. If full documentation of any complaint was furnished, the matter would be thoroughly evaluated.

EUROPE AND AUSTRALIA

The IVth session, which followed the third, dealt with the problems and prospects of exports of Indian marine products to Europe and Australia. The session was presided over by Mr. Mani Narayanaswami, Addl. Secretary, Ministry of Commerce. Mr. Pierre Hottlet, of Belgium, was the principal speaker at the session. He said that on the previous day small sized Japanese spoke about the big market they had in Japan for Indian sea foods and that this day, he, a tall and hefty European would speak about small markets in Europe. He detailed the market conditions and the prospects for export of marine products for Europe in respect of shrimps, squids, cuttle fish and lobsters. He

said that it would be desirable for the Indian side to concentrate on exports of shrimps and lobsters. He did not see any future in exporting fish to Europe from India. In a subsequent talk, however, Dr. Shaktivel said that his survey had revealed that there was a good market for marketing of soles in Western Europe.

Mr. R. K. Mittra pointed out that there were rich fishery resources along north east coast and that it would be possible to meet export demands for marine products substantially. He observed that they were facing serious shipment problems on the east coast. There was practically no sailings to European countries either from Visakhapatnam or from Paradeep. He pleaded for help for the diversification of fishing effort and also exports.

He referred to his visit to Europe in 1978 as a member of a team. During the tour, it was noticed that importers had to pay heavy import duties in most of the countries. In the case of countries such as Bangla Desh, European countries such as U.K. waived off import duties. It was necessary such facility should be extended to imports from India as well. If this was done, the Indian exporters should realise better prices. He also pleaded for effective steps for the exploitation of the rich fishery resources in the Indian Exclusive Economic Zone.

Mr. R. R. Naik of Sheshank Sea Foods, Honnavar, spoke on problems and prospects of exports from Goa. One point made by him was that practically no ships called either at Goa or Mangalore. Consequently, they were forced to take the consignments for export either from Cochin or Bombay. This meant delay. The Inspection

Certificates issued by E.I.A. were valid only for 10 days. The procedure for getting the certificates revalidated was cumbersome. He therefore suggested that the validity period of the certificates may be extended to 30 days. He also suggested that, in order to eliminate contamination by human hands, machineries such as washing and grading machines may be installed in processing plants.

EXPORT OF HEAD ON BENEFICIAL, SAYS SANKARA SUBBAIYAN

Mr. V. Sankara Subbaiyan, Director of Fisheries, Tamilnadu, who visited various European countries recently as a member of an Indian delegation sponsored by the MPEDA, spoke on the occasion. He said that our market share in west european countries was not even 1%. Our exports to west European countries mostly consisted of shrimps, lobsters and frog legs. During discussions held in various countries, he said that the delegation learnt that while countries like Spain imported head-on shrimps, the other countries obtained headless shrimps. He felt that export of head-on shrimp was more beneficial to the Indian exporters. However, improvement in facilities from the catching stage would be necessary. He said that there was a good market for tuna in west european countries. At present, our share of these exports was negligible. Several countries importing shrimps such as Spain and Italy were getting concessions on imports from countries where they had joint ventures. Spain was getting 18% advantage on import duty. This could be taken advantage of by entering into joint ventures with Spanish fishing organisations. He said that the Government of India had relaxed the provisions for

charter and in regard to buying vessels. The response from the fishing industry was not however encouraging. Some of the corporations like Tamilnadu Fisheries Development Corporation opted for chartering of vessels for the reason that, during the period of charter, the Indian counter-parts would acquire the required know-how and operate vessels which they would be acquiring as part of the charter conditions.

While there was some notable change in the level of exports of frozen shrimp and other imported products to the west european countries from India, he said that it was time to increase the production of marine fish by exploiting the resources of our EEZ and step up their exports.

In his concluding words, the Chairman, Mr. Mani Narayana-swami said that he had made a note of all the views expressed and that he would take appropriate action on priority basis.

ENTERTAINMENT

The organisers entertained the delegates well. There were dance programmes in the evenings on all the three days. M/s Sea-Land Service Inc. New Jersey entertained the guests at cocktails on 11 February in the evening followed by a dinner hosted by Mr. Manick B. Patel, General Manager, Taj Coromandel Hotel, Madras. On 12 February, Mr. C. Cherian, President of the Sea Food Exporters Association entertained the delegates at a dinner at fishermen's cove, Covelong, Madras. On 13 February, Mr. T. M. Joseph, Managing Director, M/s George Maljo Madras, entertained the guests at cocktails followed by a dinner hosted by Mr. S. N. Rao, Chairman, MPEDA.

MARKET TRENDS

During February 1983 there was a tendency towards improvement in the export prices of shrimp, particularly in regard to HL white, flower and tiger. There was very little change in regard to the export prices of HL brown and PUD. Owing to poor fishing conditions, there had been

reservations on the part of the Indian exporters to enter into contracts with foreign buyers. Exports to USA had a tendency towards dullness.

The following were the prevailing prices in the middle of February 1983.

JAPAN

Type	Count Range	Price Range per kg/US \$
HL White/Flower	8/12-91/110	15.80-3.80
HL White (Vizag)	8/12-91/110	16.20-3.90
HL Flower	8/12-91/110	15.40-3.20
HL Tiger	8/12-71/90	15.70-4.50
HL Brown (Vizag)	16/20-91/110	14.10-3.20
PUD	80/120-Broken	5.20-1.55

U.S.A.

Type	Count Range	Price Range per lb/US \$
PUD (Thelly)	Broken	1.00
PD	130/200-300/500	2.10-1.40
	Broken	0.95-1.00
Sand Lobsters	U/1-4/6	2.40-4.00
Rock Lobsters	U/1-20/up	6.75

Pomfrets exported to gulf countries fetched a price of around US \$ 2.80 per kg. Frozen Sardines and pearl spot exported to Kuwait fetched a price of US \$ 1.00 per kg. and US dollar 2.50 per kg. respectively. Frozen mackerel exported to middle east obtained a price of around US \$ 1.20 per kg. Most of the exports from Cochin shipped on 12th February 1983 consisted of PD. 6970 cartons were exported. The export prices ranged from US \$ 2.60 to US dollar 2.90 for 91/110. For 300/500 the value realised ranged from US \$ 1.30 to US \$ 1.55. For broken mackerel, the realisation ranged from 88 cents to one dollar.

Answers to Fishermen's Jumble

Words:

BOAT, KNOT, POND, FARM

Solutions:

BANK

The society takes over the sale of fish brought by a member and gives him his share after deducting the loan instalment. The owner of the catamaran and the net can also hire them to others and get two shares of the catch. This ensures regular income to the owner even on days when he is unable to go on the seas.

The Corporation has also offered each member of the society Rs. 5,000 for constructing his house near the shore. The loanees are also entitled to a subsidy of Rs. 2,000. Forty-four

with 50 per cent subsidy.

The 1000 fishermen of Marinad have formed a cooperative society to take care of their welfare. Loans for catamarans and fishing nets to the tune of Rs. 4000 and a subsidy of Rs. 2,000 are given to each of the needy fishermen. The loan carries a differential interest rate of four per cent. It is repayable by monthly instalments of Rs. 100/-.

NEWS WAVES

FISHERMEN'S WELFARE IN KERALA

Marinad, a coastal village of the Kadiankulam Panchayat near Trivandrum, is evidently a model village for the fishermen who have benefitted a lot through the Kerala State Fishermen's Welfare Corporation. The Corporation has helped the fishermen by offering them fishing crafts and housing loans



Combination trawler

This type of vessel is custom built in series and is specially designed for as well beam as stern trawling in tropical waters.

The result is a stable vessel with a large working deck area and easy to handle in all respects.

The hull is of the single chine form, giving a large fish hold, a spacious engineroom and a bigger accommodation under deck.

The hull is divided into six watertight compartments: forepeak, crew accommodation, engineroom, fish hold, fuel tanks and aftpeak/netstore.

Freezing of the catch is done by the brine tank on the main deck and by a blast freezer in the hold.

The propulsion installation consists of a Kirloskar Cummins marine diesel engine of 274 kW (370 hp) at 1800 rev/min, driving a fixed pitch propeller.

The three-drums fish winch is hydraulic driven. Two auxiliary engines drive a compressor for the freezing installation, generator and a bilge pump.

In the superstructure are provided a galley/messroom, two toilet/shower cabins, two double and two single cabins.

In the forepart below deck an eight berth crew compartment.

Nautical and fishing equipment, comprise among others radar, radio installation, direction finder and echo-sounder.

The vessel obtained the classification Lloyd's Cross 100 A1 "trawler" and Lloyd's Machinery Certificate (LMC).

Main particulars:

length overall	23.50 m
length between p.p.	21.00 m
breadth mld.	6.50 m
depth at side	3.40 m
draht (mean)	2.65 m
fish hold capacity	abt. 70 m ³
fuel oil capacity	abt. 40 m ³
fresh water capacity	abt. 15 m ³



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pucca houses have already come up in Marinad, housing the fishermen who were once living in thatched huts. The housing loan is also repayable in easy instalments with the differential interest rate of four per cent.

Most of the fishermen of Marinad are now proud owners of houses, catamarans and fishing nets. Their future is bright and secure ensuring regular income and better facilities.

* * *

FISHERY DECLINE IN HIMALAYAN WATERS

Man-made changes have brought about a great alteration in the ecology of Himalayan streams and rivers. Deforestation and the construction of dams etc. have gradually annihilated the fish in the region. For example, the Bhagirathi blockade caused by the fall of a huge hillock into the river of Damgla near Gangnani, 45 kms. up-stream from Uttar Kashi, in August 1978 formed a big artificial lake, one and half kilometres in length and 30 to 35 metres deep. As a result of this, there was no water flow for almost 14 hours between the Konnodiogod stream and Deoprayag, causing the mass annihilation of fish and other aquatic fauna and flora. The hydrobiological changes brought about by the blockade adversely affected both the migratory and non-migratory species of fish.

When the blockade was removed, there was a sudden and abrupt flow of a tremendous quantity of water which increased the mud in the river bed and further destroyed the breeding grounds of the fish. The silting also resulted in the suffocation of the fish. A considerable reduction in the fish population has been recorded thereafter.

Similarly, the June 1970 floods in River Alaknanda brought

about the massive destruction of different species of fish in the Garhwal region. This area is witnessing a large number of development projects connected with roads, dams and bridges. This is likely to alter the aquatic habitat and thereby tend to induce a change in the aquatic fauna and flora of the streams.

Such construction works cause changes in vegetation leading to the disruption of the life systems supported by it. In nature there is interdependence and interaction among living creatures. In each animal species which constitute its biotic community and the non-living (abiotic) components of the environment one linked with one another in such a manner that they constitute a unified life support system. Damage and disruption of one or more points in this network of aquatic life weakens the whole structure. Such dangerous discontinuities cause the malfunctioning of the entire system.

Apart from this, illegal methods of fishing prevalent in this area are also playing havoc with the fish population. These include blasting with dynamite, chlorination with bleaching powder, phandi fishing (long line method) and "V" shaped godas (a local fish collection device). A large number of mature males and females are captured before spawning by these illegal methods. This causes a great harm to fish progeny. The killing of one adult female would mean the destruction of hundreds and thousands of eggs.

* * *

SPANISH FISHERIES DELEGATION IN INDIA

A five member Spanish Fisheries delegation headed by Mr. Miguel Maiza Esnaola, President, Spanish National Association of Ship

owners was in India in February 1983. The other members of the team were:

1. Mr. Antonio Lopez Barrio representing NOGAR Group.
2. Mr. Jose Manuel Mujica Mendizabal, Director General, Amasua, Pampiona.
3. Mr. Antonio Segura Cabral of Anabac (Tuna Association), Bilbao, and
4. Mr. Juan Carlos Ojeda Landa, of Anacef (Cephalopod Association), La coruna.

After their arrival in India the delegation members attended 5th Indian Sea Food Fair at Madras. They met a cross section of the representatives of the various fishing companies at the fair. From Madras they visited Visakhapatnam, Cochin, Bombay and Delhi. Before their departure at the end of the month, in Delhi they held discussions with the various representatives of the Ministry of Agriculture and other Ministries of the Indian Government. Dr. M. Sakthivel, Advisor, (agricultural and marine products) at the Indian Economic Mission to EEC at Brussels, accompanied the team.

Dr. Sakthivel said that the team came to India to have direct contact with the Indian fishing industry. He said that Spanish fishery enterprises developed joint ventures in Latin American countries and were now looking forward to develop similar ventures in India. Pointing out that he had recently conducted a fisheries survey in Spain, Italy and Greece on the potential for export of Indian products, he said that Spain had evinced considerable interest in developing cooperation with Indian fishing industries. He also stated that their main interest was in the development of Tuna fishing and in the introduction of various

types of fishing vessels under mutually acceptable arrangements. He pointed out that about 35 species of marine fish had a good market in Spain. Spain was also a leading nation in the construction of fishing vessels. Spain had specialised in tuna purse seining. He observed that Indo-Spanish joint ventures in the field of fisheries would provide opportunities for the rapid development in Indian fishing industry.

Mr. Miguel Maiza Esnoala pointed out that his country had the requisite experience and technology to offer for the Indian fishing industry. He said at the moment they were engaged in a study of the resources, fishing grounds and basic facilities available to the fishing industry in India. They were happy that they could come into contact with the fishing industry at Visakhapatnam, Cochin and Bombay. He expressed the view that rules governing charters and joint ventures in India should be further liberalised. He pointed out that the member of the delegation represented the various fields of fishing industry and had collected all details of the concern aspects such as fishing vessels construction, and availability of various fishery resources. He observed that India had emerged as one of the leading fishing nations of the world.

Discussions with the Spanish team tended to show that their intention was to undertake prospecting for tuna and Cephalopods before actually entering into joint ventures with Indian companies. This activity might last for one year. The intention of the Spanish fishing companies seems to be that both the Indian and Spanish Governments would be approached for permission to undertake the above activity. It was stated

that M s. Union Carbide had expressed interest in associating themselves with the activity both for tuna as well as Cephalopod fishing subject to necessary clearances by the respective governments.

* * *

WEST BENGAL INTRODUCES INSURANCE SCHEME FOR INLAND AND MARINE FISHERMEN

It is understood the Government of West Bengal has decided to introduce an insurance scheme for inland and marine fishermen. 50% of the insurance premium will be met by the centre. It is proposed to cover 5000 fishermen coming under the fold of fishermen cooperatives in the first instance under the scheme. In due course this scheme is proposed to be extended to 5 lakh persons in the fishing line.

* * *

PULICAT LAKE FOR FISHING ONLY

The Government of Andhra Pradesh sometime back leased out 11,812 hectares of Pulicat lake area in Nellore district to a company for setting up a salt-based industry. The Andhra Pradesh irrigation minister Mr. Srinivasulu Reddy said that the previous government had leased the area in a hurry for 99 years to the company. He had objected to the lease on the ground that the interests 15,000 fishermen, who would be deprived of their livelihood, suffered. He said that the lease had been ordered without consulting the fisheries department and the forest department which wanted to set up a bird sanctuary there. He explained that he would discuss the matter with the Revenue Minister.

SUFFERING OWING TO BAN ON EXPORT OF BE CHE-DE-MER

Recently the Union Government imposed a ban on the export of dried Beche-de-mer below 3 inches in size. This has rendered about 15000 fishermen jobless for the past 16 months. Mr. T. K. N. Abubucker and Mr. K. L. Kathiresan, President and Secretary respectively of the Tamilnadu Marine Product Exporters Association stated that the traditional markets of the exports of the commodity, such as Singapore, Hongkong and Malaysia might be lost to Sri Lanka, Indonesia, Tanzania, Kenya and Philippines, if the ban was not lifted. They alleged that the ban continued despite an assurance of the government in November 1982 that 'it will consider and do the needful'.

* * *

AGITATION BY RAMPONKARS OF GOA

The recent agitation launched by Ramponkars of Goa is being viewed by the governmental authorities as a ploy by certain people to gain leadership. It is pointed out that most of the demands of the fishermen have been met by the government. The Goa fisheries department has filed 20 cases in court against trawler owners who have been caught operating in the areas reserved for Ramponkars, under the Goa, Daman and Diu Marine Fishing Act, 1980. The trawler owners had thereupon filed a suit in the supreme court contesting the legislation. The court felt that 250 trawlers could operate between 2 and 5 miles off the coast only during day time. However, the state fisheries department could not implement this formula as it did not have adequate patrolling machinery. Further, the officials were unable to make 'Panchanamas' at sea due to the absence of the third party.

Questioned about the absence of action on the 20 cases filed against trawlers owners in the court, the Goa fisheries minister Dr. W.lfred De Souza stated 'I cannot tell the court in a hurry. The Law must take its own course'. Meanwhile Ramponkars are not abiding by the rules which they had insisted that the government should make. One rule requires all boats and nets to be registered with the fisheries department before February 10. Enquiries reveal that so far only one fisherman has done so. The department has issued a notice asking fishermen to register their equipment before due date. Dr. De Souza has said that fishermen who failed to obey the instruction would be prosecuted in court. He also said that his ministry was thinking of amending the Goa fisheries Act, with a view to providing for summary punishment of those violating it.

There is some suspicion that there must be some hidden hand behind the agitation by Ramponkara, as in the neighbouring Karnataka there is no such agitation, although similar conditions prevail.

In this connection it may be mentioned that a study conducted by Mr. Ferdino Rebello, a former Janata MLA has revealed that the younger generation of fishermen is increasingly taking to the operation of mechanised trawlers.

* * *

COASTGUARD'S 6TH ANNIVERSARY

The Coast Guard, which keeps on watch over the Indian Coast line celebrated its 6th annual day on 3 February 1983 with a proud record of its achievements. During 1983 the coastguard would have 8 more ships, bringing the level to 17 nos., to be used to protect the nation's interests by



checking poachers and aiding the customs and helping fishermen.

Poachers are now wary of being caught by coast-guard. This was stated by the Director General of coast guard Vice-admiral Mr. Schunker. He said that over 40 fishing trawlers, 29% which of work hard to poach in Indian waters were prosecuted over the maritime zones of India 'Regulation of fishing by foreign vessels' Act in 1981.

He further said that the importance of the coast guard was already being felt with the government's approval of a development plan under which sophisticated patrol vessels, including those from abroad would be inducted. The Vice-admiral pointed out that the plan would enable the coastguard to patrol the country's exclusive economic zone extending all along the coast line. It will be recalled that the first coast-guard's squadron consisting of a helicopter also was commissioned in 1982 at Goa.

* * *

SHRIMP EXPORTS FROM A.P. UP

Frozen shrimp exports from Andhra Pradesh have increased considerably during the first 9 months of 1982-83. During this

period (April-December) a total quantity of over 3,900 tonnes were exported to Japan. 3,780 tonnes were exported in the same period during the previous year. It may however be mentioned here that a record quantity of 4216 tonnes were exported through Visakhapatnam port during 1980-81 (April-December 1980).

* * *

UNFINISHED RATNAGIRI JETTY CAUSES MISERY TO FISHERMEN

The construction of fishing harbour at Ratnagiri was taken up 5 years ago. The construction of jetty at Mirkarwada was suspended since 1981 as the contractor allegedly abandoned work by saying that there was no stone quarry available near by. By then Rs. 1.5 crores were utilised. Since the abandonment of the work, the construction cost has escalated from the original cost of Rs. 3 crores to Rs. 10 crores.

The fishing activity along Ratnagiri coast brings about Rs. 12 crores of foreign exchange to the nation. Fishermen here have been demanding for a fishing jetty with a marine workshop, water, electricity and cold storage facility. The state government sanctioned a jetty with these facilities about a 5 years ago at

**SHRIMP AS FRESH AS WHEN THEY LAND
ON DECK OF OUR TRAWLERS**

AND AS YOU WANT

**HEAD-LESS, SHELL-ON
PEELED AND DEVEINED,
PEELED AND UNDEVEINED, OR
COOKED AND FROZEN !**

**WE BELIEVE IN INTEGRATED
FISHERY ACTIVITIES. THAT IS WHY WITHIN
A SHORT TIME WE ACQUIRED SIX FISHING
VESSELS, ESTABLISHED A MODERN
MARINE PRODUCTS PROCESSING PLANT AND
ALSO SET UP A WORKSHOP OF OUR OWN**

**OUR FROZEN SHRIMP, OWING TO ITS
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a cost of Rs. 3 crores with 50% assistance from the Central Government.

Some 700 trawlers and 1500 mechanised boats are engaged in fishing along the Ratnagiri coast. The operators of these boats are facing serious difficulties because of the non-completion of the jetty. The fishermen of Ratnagiri are under the impression that the construction of the jetty was abandoned. They had however been assured that there was no intention of abandoning the project.

The fishermen are insistent that the government should implement the project quickly and not put it in cold storage like the Aluminium project which was abandoned after spending crores of rupees on it.

INSURANCE SCHEME TO COVER FISHERMEN OF MAHARASHTRA

The Government of Maharashtra has decided recently to insure fishermen against professional risks. So far, states such as Kerala, Tamilnadu and West Bengal, Union Territories of Lakshadweep, Pondicherry, have taken up similar schemes. Under these schemes the centre and the states would bear 2/3 of the cost and the premium paid by the insured fishermen would account for the rest. It is a matter of surprise that the other coastal states are not thinking on these lines to give protection to the life of the fishermen, who are mainly responsible for increasing Indian marine product exports.

NAGARJUNA UNIVERSITY TO SET UP CHINESE TYPE CARP HATCHERY

It is understood that Nagarjuna University in Andhra Pradesh is keen on setting up a Chinese type of carp hatchery. In this

connection Dr. Radhakrishna of Nagarjuna University has obtained the design and drawings of the hatchery from the state fisheries department, West Bengal. It is expected that work on the project will be taken up soon.

WIND MILLS FOR WEST BENGAL FARMS

The state fisheries development corporation, West Bengal proposes to set up wind mills at the various fish farms in order to save costs on the installation of pump sets for filling of ponds with water and for its removal whenever necessary.

NEW LIGHT ON MIGRATION OF WHITE SHRIMP

Scientists at the Central Marine Fisheries Research Institute, Cochin have succeeded in gaining new knowledge on the migratory habits of white shrimp (*Penaeus indicus*). The scientists released about 9000 tagged shrimp in the shipping channel of Cochin harbour during April-May 1982. Serial numbered loop tags were used for the purpose. Each tag was a plastic oblong, 15 mm x 3 mm, attached to mid portion of the shrimp by a monofilament nylon thread. Rewards were offered for the recovery of the tagged shrimp. The scientists were rejoiced to receive 100 recoveries from areas upto 60 km South of Cochin. In early August 1982 two prawns were recovered from Manappad and Overy villages in Tirunelveli district, near gulf of Mannar. After a week two more were recovered.

The first two had travelled 330 and 380 km skirting round Cape Comorin in 61 and 68 days respectively. Their daily progress thus was about 6 km aided by the prevailing southerly sea current. The shrimp grew up by 42 mm and 39 mm in size.

The institute has launched an intensive programme of monitoring of the shrimp landings on the east coast.

For a long time there has been a suspicion among scientists that the white shrimp had migratory instincts. The present experiment shows the availability of the same genetic stock of white shrimp on fairly long stretches of southwest and southeast coasts of India. Considering the high significance of this discovery, the CMFRI proposes to expand its tagging programme, with a view to gaining more knowledge about the exact nature of the migratory movement of white shrimp.

CFTRI'S NEW PROCESS FOR FISH PICKLE

The Central Food Technological Research Institute, Mysore has recently devised an improved process to produce good quality pickle using low market fish like shark and marine cat fish. The pickle stays well for a year without any refrigeration. This process is different from traditional methods and consists of frying the fish in oil, pre-conditioning in an acid-salt bath, mixing with spiced medium of salt, sugar and tamarind and bottling with addition of covering oil. Other comparable species of fish and prawns could also be used for making pickle by this process. Vinegar which is used traditional for pickling fish has been replaced by tamarind in this process to give a better taste appeal.

DECLINE IN LOSSES OF A.P. FISHERIES CORPORATION

The Andhra Pradesh Fisheries Corporation, under the leadership of its managing director Mr. M. V. Thomas, seems to be returning back to an even keel, so far as financial management is

concerned. The corporation sustained a loss of Rs. 96 lakhs in 1980-81. This was brought down to Rs. 77 lakhs in 1981-82. It is expected that in 1982-83 the loss will come down to Rs. 4 lakhs. The reduction in losses was because of the closure of unremunerative units and reduction in staff on one hand and improved performance of the trawlers operated by the corporation and careful planning of the operations at the processing plants on the other. The corporation has now introduced a scheme to provide mechanised boats to fishermen on hire-purchase basis. It appears that this step was considered essential in order to keep the boat building yard at Kakinada operational. Under the scheme the beneficiaries, it is stated, need not invest any money. Mechanised boats costing about Rs. 2.5 lakhs will be given to them on hire-purchase and the cost has to be repaid in 120 monthly instalments. The boat building yard of the corporation has a capacity to manufacture 60 mechanised boats annually. It is stated that 16 boats are now under construction at the yard.

The corporation has plans to set up cold storages at various selected places in order to provide an infrastructure for organised marketing of fish. 5 such cold storages are now under construction. The corporation earned a foreign exchange of the order of Rs. 1.36 crores in 1982 through export of shrimp.

There was a strong move to shift the headquarters of the Corporation from Kakinada to Visakhapatnam. It is however stated that this idea has now been dropped.



APFC EXPLAINS

In response to the various allegations that were dumped on it, Andhra Pradesh Fisheries Corporation Limited have at last taken initiative to explain the situation through advertisements in the dailies of the state. The management, in an advertisement, explained that Mr. C. H. Srihari, who was recruited as Chief Accounts Officer in 1968 had been promoted to the rank of General Manager only after his qualifications and capabilities were evaluated as deserving, but not by any other fraud or unlawful activities.

Defending Mr. Srihari, the Management said that the decision of shifting the accounts division of the Corporation from Kakinada to Visakhapatnam was due to heavy concentration of work at Visakhapatnam but not because of the reason that it happened to be the native place of Mr. Srihari. In fact, the Corporation explained, offices of the Financial Advisor and Chief Accounts Officer were actually located at Visakhapatnam before.

There were allegations that Mr. Srihari, out of soft corner towards a lady in his accounts

department, had tried to make the jobs of all those in her cadre into permanent ones, so that she could also be confirmed. However, the Management now stated that it was baseless and untrue. It has stated that Mr. Srihari had never recruited any person in the organisation. And the employees in question were actually recruited long before Mr. Srihari took over his present position. It was stated that the recruitment of these employees was done by a committee of top officials and Mr. Srihari had nothing to do with it. However, Mr. Srihari's recommendations to the Government to confirm the jobs of these employees in question was absolutely within the framework of the rules and regulations.

Refuting another allegation that, during 1982, certain employees under Mr. Srihari had suffered due to reduction of their service period as a disciplinary action, the Management said that there were no such cases that came to the notice of the Managing Director.

Another allegation was that the Corporation had suffered heavy losses due to mismanagement by Mr. Srihari. The Corporation explained that Mr. Srihari had

joined in the present position during July, 1981. By then the Corporation had already incurred a loss of Rs. 95 lakhs. But during 1981-82 that loss was reduced to Rs. 57 lakhs and it is estimated that there would be even further reduction in the losses in due course since Corporation had taken stringent steps to bring down losses.

The details were released by Mr. M. V. Thoma, Chairman and Managing Director of the Andhra Pradesh Fisheries Corporation Limited.

* * *

A.P. FISHERMEN RESENT LEASE OF RESERVOIRS BY PUBLIC AUCTION

The Telangana Fishermen's Central Cooperative Society has expressed its strong resentment over the state government's decision to auction the rights of fishing in all the reservoirs of the state.

Mr. M. L. Mallayya, President of the Society said that thousands of fishermen, who have been living on these reservoirs freely by catching fish would now be rendered as more labourers. He said that with this the life of poor fishermen would take a miserable turn, he said.

The state government proposed this step which would bring its exchequer an amount of Rs. 20 to 30 lakhs per annum. It was, however, feared by the fishermen that they had to be come just labourers under the hands of rich men who would be able to buy the rights of lease over the reservoirs for fishing easily.

During January this year the state government had announced its decision to auction the rights of fishing in the reservoirs at Lower Maneru Dam in Karimnagar district, Vemuluru Project in Nalgonda district, Pakala

reservoir, Yadapalli project, and Bhimunipalli reservoir and Sri Ram Sagar Project in Nizamabad districts. But due to instant resentment from thousands of fishermen dependent on these reservoirs, the government suspended its decision to sell the fishing rights in public auction. However, again during the first week of February the state government tried to enforce its decision but met with the same result.

Since 1974, about one lakh of fishermen were given free licences to fish in the reservoirs of the state.

* * *

DISTRIBUTION OF MINI KITS BY FFDA, SONEPAT

Mr. Ch. Rahim Khan, Minister for Fisheries, Haryana, distributed fish breeding mini kits to fish farmers coming under the fold of the fish farmers development agency, Sonapat on 4th March 1983. Dr. P.V. Dehadrai, Fisheries Development Commissioner, presided over the function. The role played by Dr. D.K. Kaushik, Director of Fisheries, Haryana Mr. Chander Singh, Chairman, and Mr. I.A. Chaudhry, Chief Executive Officer, F.F.D.A., Sonapat in the various progressive measures aimed at augmenting fish production in Sonapat district under the leadership of Ch. Rahim Khan, Minister for Fisheries and the progressive outlook of fish farmers was lauded at the meeting.

* * *

TRAINING COURSES ON FISHING GEAR TECHNOLOGY

The valedictory function of the training course of fishing gear technology for the marine fishery extension officers of Orissa sponsored by the Bay of Bengal Programme was held on 25 February 1983 at CIFNET, Cochin. Mr. S.N. Rao, Chairman MPEDA presided over the function. Mr. U. Tietze, of FAO delivered the valedictory address. The training

course was found to be of great benefit to the trainees as it will enable them to implement the technology in their state.

* * *

QUARTERLY MEETINGS BETWEEN INDUSTRY AND GOVERNMENT

Readers will recall that the Ministry of Agriculture had decided upon holding quarterly meetings with the fishing industry to discuss and formulate lines of action to resolve various problems confronting the industry. The first meeting was held in September 1982 at Visakhapatnam. The second meeting was expected to be held in January 1983 at Cochin. But this was cancelled. Subsequently it was stated that this meeting would be held in Madras in February 1983. This was also cancelled. There was no communication from the government as to when the second meeting would be convened.

* * *

CHARTER PROGRAMME OF METROPOLITAN TRADING CO.

M/s Metropolitan Trading Company is now operating 5 trawlers on charter from Singapore. As per the permission given by the government, Metropolitan had to finalise firm arrangements for the introduction of five vessels of their own of which one was to be introduced by January 1983. As the company conveyed the details of these arrangements very late, it is understood that the government invoked the guarantee given by the company and recovered Rs. 2 lakhs from the bankers of the company.

It will be recalled that M/s Metropolitan Trading Company gave a guarantee for Rs. 2 lakhs only unlike the subsequent companies which provided guarantee at the rate of Rs. 2 lakhs per chartered trawler. It is understood that government have called upon M/s

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FISHING CHUMS

Metropolitan Trading Company to furnish a bank guarantee of Rs. 4 lakhs and a cash deposit of Rs. 4 lakhs as security deposit for the fulfilment of the obligation on the part of the company to introduce the balance of 4 trawlers or their own as per the stipulated time schedule.

* * *

IMPORTS FROM POLAND

The request of several companies for extension of permission to import trawlers from Poland is still under consideration of the Ministry of Agriculture. It is understood that final orders in this regard may be issued very soon.

* * *

IMPORTS FROM HOLLAND

It is understood that in pursuance of the extension of time limit given by the government for the import of trawlers from Holland in favour of M/s Satya Sai Marines (2 trawlers), M/s S.B.S. Marines (2 trawlers), M/s Saffire Fisheries (1 trawler), these companies have completed all the formalities and paid their 10% share of the cost of the vessel to the SDFC. It is however understood that M/s Satyasai Marines will be utilising the permission given to them for the import of only one vessel against the permission for import of 2 vessels.

Three other companies holding similar permissions are expected to finalise the various formalities before the end of the March 1983.

* * *

SHRIMP COMMITTEE

It is learnt that the Ministry of Agriculture has constituted a Committee of experts to make recommendations on the present scope for introducing more number of shrimp trawlers with reference to the resources position. It is expected that the report of this committee will be available by the middle of 1983.

CHARTER CONDITIONS

In the recent letters of intent and permissions issued by the government for chartering of fishing vessels by Indian parties, it was stipulated that a) Visakhapatnam and Bombay should not be the bases of operation, b) no fishing can be conducted upto 24 miles from coast and c) no fishing is allowed off Paradeep.

There are now indications that, while Visakhapatnam and Bombay will not be allowed to be chosen as bases, if there are any special grounds, the adoption of the places as bases may be considered by the government. Government may also now permit fishing beyond 12 miles from the coast line. Fishing may also be permitted off Paradeep.

* * *

NEW CHARTERED TRAWLERS

The trawlers chartered by M/s Nav Bharat Ferro Alloys are now operational. It is understood that the vessels chartered by the Orissa Maritime and Chilka Development Authority would also become operational very soon. It is also understood that two pairs of trawlers each chartered by M/s Shrimp (India) Private Limited and M/s Srinivasa Sea Foods Private Limited have become operational.

It is understood that M/s Peejay Indo-Bulgarian Fisheries Ltd. may close down the operations by their chartered vessel very soon for the reason that the Bulgarian counterparts are disappointed with the results of operation by the vessel so far.

* * *

KFDC EXPORTS FROZEN SARDINES

The Karnataka Fisheries Development Corporation has exported a consignment of five tonnes of frozen sardines to Kuwait recently. The consignment was shipped from Mangalore port. The sardines were

reported to have been under frozen condition for a month before the shipment.

* * *

'SAGAR DEEPA' TO BOOST PRAWN CULTURE IN KARNATAKA

The Government of Karnataka has sanctioned a scheme to promote prawn culture in the state which was named as 'Sagar Deepa'. Under this scheme, the farmers would get a maximum subsidy of Rs. 10,000/- each and the farm should be of a dimension of not less than 0.4 ha. Aquaculture farms in saline water logged areas are being developed for this purpose. 25% of the cost of construction of the farm would be borne by the government by subsidies.

* * *

BRACKISHWATER FISH FARMS SCHEME WOUND UP IN A.P.

The Government of Andhra Pradesh has wound up, as a measure of economy, the special schemes for the promotion of brackishwater fish farming introduced about two years ago. The work connected with brackishwater fish farm will now be handled by the regular staff in the department.

Most of the coastal states introduced separate schemes for the promotion of brackishwater fish farming for the reason that the activity requires the extension and application of specialised technology. Personnel who are trained in the activity or who have gained experience in the line have been implementing the programme. The winding up of the scheme in Andhra Pradesh may have the effect of retarding the progress in the spread of brackishwater fish farming in the state.

* * *

MORE FISHING HARBOURS IN WEST BENGAL

The Government of West Bengal has proposals to construct two more fishing harbours, one at Sankarpur near Digha, in Midnapur District

and the other at Frajergunj in 24-Parganas. These will be minor harbours from where mechanised boats would be operated.

It is understood that the Government of India has already approved the Sankarpur harbour project at a cost of Rs. 1.5 crores. This outlay includes cost of construction of jetties, a cold storage and an ice plant. The project at Frajergunj has not yet been sanctioned by the centre. It is learnt

that the ministry of Agriculture has advised the state government to examine possibilities of setting up another fishing harbour in the state.

EXCISE DUTY ON FISH EXEMPTED

In a recent notification the Government of India has included 'Fish and Sea Foods' as an item eligible for exemption from excise duty, in the first schedule in the centre excise and salt act.

tonnes. In 1982 the imports came down to 1,51,370 tonnes, registering a fall of 6.40%, the quantity of decline being 10,351 tonnes. The short fall in the imports have been attributed to reduce supplies from China, Pakistan, Thailand and Indonesia. The exports of the commodity from India also declined, although marginally, by 0.55, the actual quantity being 221 tonnes. However Indian supplies of frozen shrimp to Japan was a little over 26% of the total imports of this item into Japan.

INTERNATIONAL

SATELLITES MAY REVEAL SECRETS OF MARINE MIGRATIONS

Scientists at the Aberdeen University in Scotland have achieved the first satellite tracking of a fish. This is said to open up exciting possibilities for tracking marine animals during migrations throughout the world's oceans.

First details of the success were given at the Annual conference of the British Association for the Advancement of Science at Liverpool recently by Dr. Monty Pride from the University's Zoology Department. He said the university team had developed a radio package which could be attached to a basking shark. With the UHF radio beacon and a satellite tracking system it was possible to locate the animal anywhere on the earth's surface.

Dr. Priede described how he and his colleagues crept up behind a seven-tonne, nine-metre-long shark basking off the Scottish west coast and attached the tiny radio transmitter to it. The beacon floats on the surface behind the shark. Whenever the shark was on or near the surface, a receiver on board an U.S. French satellite could pick up

the signal. Information about the shark's movements was relayed back to Aberdeen by telex.

The satellite also sent back pictures of the sea surface temperature and colours indicating plankton distribution. From all this information, the Aberdeen scientists could see exactly how the shark was behaving in relation to its food resources.

The satellite system can track several thousand animals worldwide. In the case of the shark, its transmitter was deliberately attached by a weak link so that it was shed after 17 days. However, a new miniature transmitter now being developed could be attached permanently.

Dr. Priede said individual whales could be tracked and monitored. This could form the basis of a stock management system which could answer some of the questions about whether certain species of whale really were in danger of becoming extinct.

DECLINE IN JAPANESE SHRIMP IMPORTS

In 1981 the imports of frozen shrimp into Japan were 1,61,721

SPAIN INVESTS HEAVILY ON FISH FARMING

A plan to spend about 20 million dollars on fish farming has been approved by the Government of Spain. Two thirds of the amount would be provided from the Government funds while the rest would be drawn from the private sector.

Farming of bass, turbot and sole features mainly in the proposed training programmes to the fish farmers. Research and development would also have top priority in the fish farming development programmes of Spain. Most of such projects are drawn to be funded on fifty-fifty basis between the Government of Spain and private entrepreneurs. Three projects for prawns and two for oysters and mussels have already been drawn. Fresh water fish culture too is included. Special attention is given to the engineering and related techniques of fish farming, which is often neglected by many a country while creating developmental programmes of fish culture.

The government of Spain expects that with such projects there could be a variety of fish made available to the consumers in Spain. Spanish per capita consumption of fish is

37 kg. per annum being second in the world.

At the moment Spain produces 300,000 tons of cultured fish most of which consists of mussels grown on floats. Spain has 170 trout farms.

* * *

ADB'S CARP CAMPAIGN

To focus on the production of carp fry and fingerlings on mass scale, the Asian Development Bank has approved a regional technical assistance grant for research and training in its member countries.

The ADB has approved six of such projects between 1977 and 1980 in Burma, Bangladesh, Nepal, Indonesia and Pakistan where a total carp output of 61,000 tonnes is expected.

For this purpose about 23 hatcheries were set up to produce 440 million fingerlings a year. The target is yet to be reached. Carp constitutes the most important group of cultured fish in Asia and the ADB's efforts to increase the production of fingerlings would enhance the carp production in the continent considerably, according to the reports from Asian Development Bank.

The main aims of the proposed technical assistance project are to analyse the problems of seed supply particularly in the ADB funded hatcheries; to design and coordinate a programme of applied research to solve these problems; to advise the operators of carp hatcheries on how to improve the seed production; to hold training programmes on management of carp hatcheries; to make recommendations for improving research and training in carp seed production; to distribute information resulting from the project etc. The ADB may depute an expert to supervise the functioning of the project in its member countries.

ICLARM'S RESEARCH SPREADS WORLDWIDE

The International Centre for Living Aquatic Resources Management functioning from Manila as headquarters has done a commendable job in helping the developing nations all over the world in bringing about rapid development in aquaculture.

This institution has started in early seventies as a programme of Research Corporation of the University of Hawaii. Later it was incorporated in March, 1977 in Manila, Philippines, where it has headquarters now.

Its sole aim is to facilitate and coordinate long term research in capture and culture fisheries. This body is a completely autonomous, non-governmental, non-profit, international scientific research centre.

It has been organised to 'conduct, stimulate and accelerate research on the development of living aquatic resources to assist developing countries in meeting their nutritive and economic needs'.

The activities have expanded from Philippines to Australia, Egypt, India, Indonesia, Israel, Kuwait, Mexico, Peru, Taiwan and Thailand. Its activities have gradually developed broader coordination and linkages with massive organisations like FAO, CSIRO of Australia, Canadian International Development Research Centre, the United Nations University, Tokyo, Indonesian Agency for Agricultural Research and Development, the Asian Development Bank, the Taiwan Council for Agricultural Planning and Development and the German Agency for Technical Coordination.

The ICLARM has four fold approach to fisheries development.

These are: aquaculture, traditional fisheries resource development and management and education and training.

ICLARM's major advances were noted in development of integrated fish farming where they have reached a mathematical precision in the work. Other areas of its research include, tilapia, mullets, milk fish, and prawns.

Several projects developed by this institution are now successfully being implemented in Kuwait, Mexico, Egypt, Taiwan, Philippines and Malaysia.

* * *

COME BACK SOLMON

The people of Japan are concerned more than ever to enhance the solmon environment. There seems to be total commitment from the people of Japan in having the solmon grown to its fullest capacity in the waters of their country. The observations made by Mr. Sandy Maclaurien of Canada's Department of Fisheries and Ocean during his recent visit to Japan to look into the culture techniques of solmon was astounded at the response of the Japanese in rearing this fish.

On a 'Fry Release Function' held at Tama river in Japan he observed that people from all walks of life took pride in releasing the solmon fish fry in the river. The song 'Come Back Solmon' has become very famous in Japan. There were incidents where commitment to solmon enhanced the business of some people. For instance, Mr. Sandy reports that a vodka distillery on river Sapporo, namely Takara Shuzo Company has enhanced its vodka sales just because of the fact that solmon returned to that river after many years. The Company immediately started a campaign on a product by raising a caption 'Solmon Baby', and the sales of that vodka was astounding, says Mr. Sandy.

MILK FISH PROPAGATES WELL UNDER LAB CONDITIONS

The milk fish (*Chanos chanos*) is available abundantly in Indian and Pacific oceans. It has been found long time back that this fish adapts well to the culture techniques and can be grown profitably in ponds. However, the availability of seed has been a problem for continued farming. But recently the efforts of Mr. T.P. Chen of Taiwan Fisheries Consultants Inc on the production of milk fish fingerlings in laboratories have been reported to be successful. He tried induced breeding techniques on the female milk fish kept in sea water and came out with positive results. According to Mr. Chen a production of 6 to 10 tons of Kg/Ha could be achieved by applying modern methods which he has evolved.

* * *

ASEAN SEEK HELP FROM EEC

To promote aquaculture in its member countries, the Association of South East Asian Nations comprising Thailand, Singapore, Malaysia, Indonesia and Philippines has proposals for securing a financial assistance of 28.7 million \$ from the European Economic Community.

This was approved in a meeting held among the members of ASEAN at Bangkok recently.

The aid when received would be divided among the recipients to be utilised for fishery developmental programmes in their countries. All the members sought assistance for inland fisheries except Singapore who wanted money for marine fisheries development.

* * *

WHAT DIEGO GARCIA MEANS TO MAURITIUS

The Prime Minister of Mauritius recently mentioned during his visit to Delhi that Britain's taking away of Diego Garcia had deprived

Mauritius of gains from fishing in that region.

Mauritians have a great attachment to fishing. Apart from the commercial aspect, the fishes around Mauritius offer great scope for angling. Amateur anglers seek to hook fishes such as yellow fin and Marlin (both black and blue Marlin) found in the waters South west of the island. Blue Marlin weighing 500 kg. was caught in these waters, which was the world record.

Marlin is a vintage fish. The Mauritian fishermen have named the fish as 'Emperor'. Marlin provides a great challenge to the fishermen. It takes an exhausting run with the hook for several miles, sometimes breaking away from the hook.

* * *

7TH MEETING OF THE BOBP ADVISORY COMMITTEE

The 7th meeting of the BOBP advisory committee was held at New Delhi from 17 to 21 January 1983. The session was inaugurated by Mr. R.V. Swaminathan, the then Union Minister for Agriculture and Rural Development. In his inaugural address the minister stated that the thrust of the programme was to improve the economic status of the region's small scale fishermen and was in line with the priority given by India towards the welfare of the small scale fishermen. He appreciated the progress achieved under the programme in the development of improved beach landing craft and high opening bottom trawls. He hoped that the progress achieved would be maintained and further reinforced in the future.

Mr. S.P. Mukherji, Secretary, Department of Agriculture and Cooperation, Government of India welcomed the various delegates who included Mr. Lars Angustinson, Deputy Chief, Agriculture Division,

SIDA, Stockholm, Sweden, Mr. N. Kojima, Director of Fisheries, Department of Fisheries, FAO, Rome and Mr. Anura Weeraratne, Secretary, Ministry of Fisheries, Sri Lanka. While Mr. Weeraratne, called the meeting to order and presided over the meeting in the first phase, Mr. Jakhanwal, Joint Secretary (Fisheries) Department of Agriculture and Cooperation, Government of India, chaired the meeting subsequently.

Mr. Lars Angustinson said that Sweden was interested in extending future support to the programme for the betterment of the small scale fisher folk. He said that the programme depended far too much for finances on one donor and he hoped that there would be support forthcoming from other donors and the member governments themselves. Mr. Kojima said that in the wake of the success of BOBP several similar projects were started in other areas. He expressed the hope that the meeting would explore the possibilities of additional sources of funding from other donors and participating countries.

In the course of the discussions, the various participating countries presented their future project needs. Bangladesh gave high priority to the improvement of fishing gear. The Bangladesh Government was satisfied with the very encouraging results for Chandi boats which had proved economically feasible and led to substantial increase in incomes of fishermen. The need for the use of locally available materials and equipments in all aspects of crafts development was emphasized. In regard to coastal aquaculture, the Sathkira aquaculture project was being started. Demonstration on the same lines was required in other areas such as Patnakhall. The development of marketing mechanism was also necessary. It was mentioned

Sri Lanka expressed interest in the continuation of the work relating introduction of diversification of fishing effort for the demersal species. Their representative wanted that long line and trap fishing methods should be started and demonstrated in other areas of Sri Lanka coast line, although in certain places the result were not positive. High opening trawl-net should be introduced. Interest was also shown in the introduction of lift nets of both the Indian and Indonesian types.

Sri Lanka wanted more assistance in the extension work relating to performance of existing craft and in the evaluation of new craft. It was stated that a 75% subsidy scheme had been introduced to promote introduction of sails as a propulsion axiliary. It was mentioned that a pen-cum-cage culture project should be started in Sri Lanka.

India wanted continued project assistance in the introduction high opening trawls in the northern part of the east coast. It was also urged that fish aggregation devices should be introduced, particularly in the Andaman waters. The need for the use of locally available materials and equipments in all aspects of craft development was emphasised.

India also expressed continued interest in the development of economically feasible beach landing boats. Considering the social structure of its beach landing communities it was felt that management problem may arise after introduction of new crafts. It was urged that studies and long terms extension efforts would be required to overcome such problems. In respect of coastal aquaculture, pointing out the successful result achieved at Killai in Tamilnadu, the importance of seed and feed for

this type of culture was emphasized. The need for the involvement of BOBP in the proposal of the state government of Tamilnadu for the establishment of a shrimp hatchery and in regard to feed development was emphasised.

So far as Malaysia was concerned, reference was made to the successes achieved in solving the problems of acid sulphate soil in the Ban Merbok project and the use that will be made of the pond culture work in the training centre to be built to train fish culturists. Request was made for further assistance from BOBP for assessment of economics of pond culture. It was felt that studies on the relationship between the Mangrove and fisheries resources development in them would be necessary.

Sri Lanka pointed out that the administrative cost on the project came to 28% of the total project cost which was on the high side and suggested that alternate ways to reduce this were to be found. It was also observed that the participating states should have some measure of control over the budget of BOBP. Sri Lanka also pointed out that entire structure of the project frame work required review as also the advisory committee's position vis-a-vis the BOBP and the issue of membership. The programme director of the BOBP pointed out that the 28% component of the administrative costs included various other costs such as information service, costs of the programme director and monitoring activities such as the meeting of advisory committee and review missions.

He said that local administrative costs were of the order of 4% of the total budget. On behalf of the FAO it was suggested that the local administrative costs may be provided by the member governments in local currency. On this

point Bangladesh reacted by saying that they were already paying this and that an additional contribution was not possible.

* * *

FISH MEAL IMPORTS BANNED IN THAILAND

The Ministry of Commerce of Thailand has recently imposed restrictions on the import of fish meal into the country with a view to helping fishermen in securing higher prices for their trash fish catches. In Thailand the cost of locally manufactured fish meal is far higher than imported fish meal. The Government proposes to lift the controls only when the price of indigenous fish meal becomes inordinately high and if there is a shortage of the item in the country.

* * *

HOLLAND BANS IMPORT OF WHALE AND WHALE PRODUCTS

Consequent to the decision of the EEC in January 1981 to conserve whale populations, the Dutch Government has recently imposed a ban on imports of whale and whale products into the country.

* * *

POUCH VACUUM PACKING PROVES SUCCESSFUL IN SRILANKA

While the target of reaching a production of 300,000 tons of fish from all sources is nearing, the efforts are now being made to bring out suitable marketing of fish in Sri Lanka. One such effort was developing packaging techniques to market the fish in interiors. The Institute of Fish Technology in Colombo has developed a cheaper method to store fish for ready consumption which has been proven successful. The method, pouch vacuum packing, is done by using O-Nylon/C-polypropylene and was decided as best suited for Sri Lanka. A pilot plant to make this commercial has been approved by the Government of Sri Lanka.

This is going to be located at Anuradhapura with a capacity for 3100 packages per day.

WORK SHOP ON DRY FISH

First ever work shop on dry fish at International level was held at Universiti Pertanian, Malaysia recently. It was jointly organised by Universiti Pertanian, Malaysia, Food and Agriculture Organisation and IPFC.

About 80 participants have presented 23 papers relating to production of dried fish, dehydration, methods, quality, standards and acceptability and marketing.

Malaysia and Indonesia are heavy consumers of dried fish in Asia; Products like Fish Satay and Pinday are very popular in these two countries.

The participants of the workshop have expressed that efforts should be increased in research on insect infestation, and control and assessment of the losses. They sought improved methods for cleaning and producing low salt dry fish for total usage as a complete protein source. They also expressed that support should be given to consumer packing, labelling, date stamping and storage of dried fish products.

SEA FOOD CONFERENCE 1983 AT TOKYO

About 400 persons have participated in the 5th International Sea Food Conference held at Tokyo, Japan recently. Generally the International Sea Food Conferences have so far been held inside Europe and this is for the first time that it was held out side the European continent. It was because of the fact that Japan has a very strong representation in this conference. There was also participation of some of the Asian countries other than Japan.

INDONESIA GETS AID FROM ADB

The Asian Development Bank has granted a financial assistance of 5.4 million dollar technical assistance to Indonesia for their Sixth Port Project for developing the infrastructure at the fishing harbours in that country.

An outlay of about 23 million dollars are also being provided for Indonesian brackishwater developmental projects by the ADB. This amount would be spent by Indonesia to give a major fillip to pond development and loans to the farmers.

WORLD BANK MISSION VISITS BANGLADESH

A world bank reconnaissance mission visited Bangladesh recently to study possibilities of coastal aquaculture in the state. It is understood that they are favourably impressed with the scope for undertaking coastal aquaculture in the country on a large scale.

Dr. A.K. Ghosh, Managing Director, State Fisheries Development Corporation, and consultant under the Bay of Bengal Programme visited Bangladesh recently to provide technical assistance in shrimp culture at Satkhira project. The farm at Satkhira will have an extent of 20 hectares and the construction work has already been started. This is a demonstration farm to popularise techniques of brackishwater culture. Sometime back the officers in charge of the farm had already undergone preliminary training under Dr. Ghosh in India.

RESERVOIR FISHERIES IN FIJI

Fiji, a conglomeration of more than 800 islands, is having vast marine resources. The inland fisheries sector is poorly developed. Under the national hydro-electric scheme, a number of man-made

lakes are being created. The first impoundment known as the Monasavu Reservoir has been completed. The Government of Fiji is very keen to develop fisheries in its newly constructed reservoirs. Accordingly, Mr. Lepani N. Daivalu, Department of Fisheries, Ministry of Agriculture and Fisheries, Fiji, was sponsored by the Commonwealth Secretariat, London, for 3 months attached training on the 'Reservoir Development and Management' at the Central Institute of Fisheries Education Bombay. Mr. Daivalu was attached with Mr. Kuldip Singh, Professor (Inland Fisheries). He completed his attachment successfully and prepared an approach paper 'Development and Management of the Nadrau Hydraul-electric Lakes (Monasavu Reservoir) - A New Source of Inland Fisheries of Fiji', under the guidance of Prof. Singh.

PAKISTAN, THAILAND AGREE ON JOINT VENTURES

On an invitation from the government of Pakistan, Thailand has agreed to operate in the waters of Pakistan on joint venture basis. Thai Ministry of Foreign Affairs have coordinated the agreement between the Department of Fisheries of Thailand and Pakistan.

The fishing industry of Pakistan have been of late requesting their government to encourage joint ventures to give boost annual output. The production of fish in Pakistan is on steady rise for the past two years.

MALAYSIANS KIND TOWARDS THAIS

The Malaysian government has agreed to allow the fishermen of Thailand to operate inside 30 km limit of their country. However, the fishermen so desired to fish in the Malaysian waters should obtain a formal permission from the Malaysian Government.

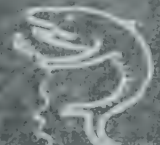
1. Total fish production of Japan in 1980 was
a) 12.112 million tonnes,
b) 11.122 million tonnes,
c) 11.212 million tonnes
2. Number of fishing enterprises of Japan in 1980 was
a) 216.000, b) 126,00, fc) 162,000
3. Fishermen population in Japan in 1980 was
a) 1.83 million, b) 1.38 million,
c) 3.18 million
4. Number of fisheries workers in Japan in 1980 was
a) 640,000, b) 406,000, c) 460,000
5. Number of fishing vessels of over 50 GRT in Japan in 1980 was
a) 4,700, b) 7,400, c) 4,070
6. Number of fishing ports in Japan are
a) 8,266, b) 6,288, c) 2,866
7. Number of retail fish markets in Japan is
a) 65,600, b) 66,500, c) 56,600
8. Number of wholesale fish markets in Japan is
a) 1,111, b) 2,111, c) 1,112
9. Number of freezing plants in Japan as in 1980 was
a) 7,195, b) 9,251, c) 1,795
10. Number of processing plants in Japan as in 1980 was
a) 22,500, b) 25,200, c) 20,520
11. Central wholesale markets for marine products are established in Japan in cities with a population exceeding.
a) 3 lakhs, b) 2 lakhs, c) 4 lakhs
12. 'Chikuwa' in Japan is a
a) perch, b) fish paste,
c) raw rish
13. Production level of canned marine products in Japan in recent years has
a) gone up, b) fell, c) static
14. Export of fishery products from Japan in 1980 were valued at
a) US dollar 1,153 billion,
b) US dollar 1,513 billion,
c) US dollar 1,315 billion
15. Japan has achieved the highest fish production among all maritime nations of the world since
a) 1975, b) 1972, c) 1970

14. a, 15. b.

8. a, 9. c, 10. a, 11. b, 12. b, 13. a,
1. b, 2. a, 3. b, 4. c, 5. b, 6. c, 7. b;

Answers:

ANSWER FISH



Q. The rules for issue of permits for chartering of fishing vessels by Indian nationals provide for the acquisition of fishing vessels equal in numbers to those permitted to be obtained on charter, within a stipulated period. Can you explain the various implications relating to this provision?

**VENKATESWARLU N. (Capt.)
VISAKHAPATNAM**

A. The provision referred to by you is a practical step aimed at strengthening the national fishing fleet. If paired units are permitted for charter, the charterer has to introduce the first pair or the first single vessel as the case may be in 18 months counted from the beginning of the charter operations. The second unit has to be introduced in 24 months, third in 33 months, fourth in 42 months and fifth one in 51 months.

It is stated in the notified terms and conditions that the charterer should purchase required number of fishing vessels and put them in fishing operation in the exclusive economic zone of India within durations as mentioned above. In the terms and conditions enclosed to letters of intent issued

to applicants it is mentioned that 'a stipulated number of vessels (20 m length and above)' have to be put in operation before the end of the stipulated periods as above. From this it appears that the vessels to be acquired need not be of the description as the chartered vessels.

There is no indication available whether these have to be constructed indigenously or can be imported. Presumably, where an Indian shipyard is in a position to construct such vessels, orders have to be placed on them. The cost of acquisition in this manner may not be higher than imported ones in the case of designs already with Indian shipyards, as subsidy will be available.

To our knowledge Indian shipyards have drawings for 23 m long commercial shrimp trawlers of Mexican and U.S. (Rockport) design. These are shrimp vessels and we do not know whether government would agree for the introduction shrimp vessels. The Ministry of Agriculture is against increase in the number of shrimp trawlers. If the same view continues, it appears that indigenous construction of similar vessels may not be possible.

Goa Shipyard has drawings of vessels of 36-40 m long trawlers and multipurpose vessels. But these vessels were designed for exploratory and training purposes and to what extent they are suitable for commercial operations is not known.

The cost of these vessels will be on the high side and acquisition of such vessels may be difficult for those with financial constraints. The commercial viability of these vessels has not yet been tested.

In the above background, the alternative open seems to be for the parties to apply for the import of required number of vessels of 20 m length and above, unless government permits acquisition of shrimpers from Indian yards. If the applicants

themselves are not interested in shrimpers but in multipurpose vessels or other vessels, import becomes the only choice. The Indian shipyards may be able to buy drawings and construct these vessels indigenously but the work cannot be completed within 18 months, the period stipulated by the government to introduce the first pair.

It is necessary that government helps the parties in processing the applications to the SDPC for loan assistance to acquire the vessels expeditiously so that the parties may not have a chance to say that because of procedural delays they could not introduce the vessels in time. The laying down of time schedules to cover the various stages of the work may be useful.

affairs. Moderate fishing results can be expected in the last day of the month.

GEMINI (May 22 to June 21) :

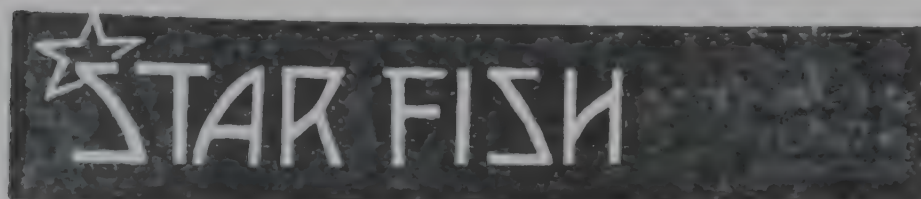
You can expect an improvement in your career and also unexpected financial returns. You will be able to evoke positive responses from others. You will see the results of your good work materialising during the month. Towards the middle of the month you will see a change for the better in your life. You will be able to bring to fruition a difficult job which you undertook. There will be around appreciation about your successes. Your fishing results will be above the general average in the second part of the month.

CANCER (June 22 to July 23) :

You have to attend to your work in a cautious manner, taking your steps after proper evaluation at each stage. If you act on these lines you are bound to see favourable results. Take care of small details to avoid serious difficulties. In the second part of the month you will be in a mood to finalise your plans for new ventures. Accept any useful advice from experienced persons. While there may be an increase in work load, it is advisable that you act with restraint. There can be some trouble to those on board fishing vessels. Fishing results may not be on the brighter side.

LEO (July 24 to Aug. 23) :

While financial matters may show some improvement and you will be able to win the appreciation of your supervisors, there can be complications and also some gossip around you. Ignore these. There is no doubt that you will have cooperation from all your well-wishers. Be straightforward in expressing your views and avoid any secret



HERE is an estimation of what stars say about fortunes of fishery industrialists, managers and operators for April 1983. Believe it or not.

ARIES (Mar. 21 to Apr. 20) :

There will be happiness and contentment in the first two weeks. New opportunities may open up in regard to career. Do not get intimidated by your friends. Think carefully and evolve your approach to matters concerning your betterment carefully. While you may face criticism you will have the advantage of having situations in which you will be brought into a sharp focus of all concerned. Take advantage of this general attention. There will also be surprising developments in your favour. It can be said

that you are reaching the peak of your professional career. You will command respect from all around you. While fishing will be dull, encouraging results are likely in the fourth week.

TAURUS (Apr. 21 to May 21) :

Upto 21 of the month developments may cause considerable concern and discouragement to you. Face these with equanimity and patience. Avoid any hasty action. Concentrate on your work, keeping off from your mind all controversial matters. Make efforts to further your career and professional interests. There will be encouraging signs in your professional life. Business affairs would also be improved. During the last part of the month there will be an improvement in your

deals. There can be opportunities to make money but make sure that this will not lead to trouble. There is a likelihood of good news in the third week. There can be trouble with one of your colleagues and this may effect your routine work. While dullness in fishing will be there, in the third week there can be encouraging catches.

VIRGO (Aug. 24 to Sept. 23) :

A problem which you have been facing these days may get resolved. You will feel a surge in your personal power. You will face a situation in which you may have to part with money to help those in need. While you will be at your best in communicating your feelings to others, it would be advisable not to push matters too far. There appears to be need to maintain mental calm. You may have disagreements with your friends but see that these does not create any confusion. There can be unfavourable developments which you will be able to neutralize with tact. You may be able to achieve moderate fishing results from 22 to 28.

LIBRA (Sept. 24 to Oct. 23) :

You will be in a mood to work hard and your earnings are likely to go up. There will be opportunities to improve your professional and career aspects. Those appearing for professional examinations will succeed. There will be a favourable trends all around. Sudden inflow of funds is possible. There is possibility of untenable rumours about you being spread. Be bold and contradict them. While fishing may be dull, some encouraging results can be expected from 22 to 28.

SCORPIO (Oct. 24 to Nov. 22) :

Avoid hasty decisions, particularly on important matters. Face criticism from others boldly. There will be considerable mental strain with which you have to cope

up. Clear thinking and careful planning are essential. If you play your cards well you can see good results. Financial prospects are likely to improve after 22. Be assertive in following up important decisions effecting your future. Do not make any hasty promises in regard to business matters. Fishing results are not likely to be your satisfaction.

SAGITTARIUS (Nov. 23 to Dec. 21) :

Do not borrow or lend money in the first fortnight. There is a fair chance of a congenial climate building up for betterment in your professional career. It is likely that your career prospects will receive a spurt for the better. Control your spending carefully. Towards the end of the month you may have to take a number of decisions at short notice, affecting your career matters. There can be some ill-health against which you have to guard yourself. Do not venture into new fishing grounds but concentrate on those previously known. The fishing results will be to your satisfaction.

CAPRICORN (Dec. 23 to Jan. 20) :

There will be encouraging developments in any new schemes that you have been pursuing. Be careful about your expenditure. You are likely to come to know about developments behind the scene. This knowledge may be useful to attack. Do not enter into arguments either with your friends or your relatives. Be friendly with them and make the best use of their support. You will be well in your job and you may also pick up some new ideas for the betterment of your career. Money problems may unfold but you may be able to tackle them. Good fishing can not be expected, but results somewhat encouraging can be expected after 15.

AQUARIUS (Jan. 21 to Feb. 19) :

You have to wait for good days to come. Make what changes are necessary in your plan to achieve quick results. Inclusion of new ideas may bring surprisingly good results. There can be favourable developments from 22 to 28. At the same time, there can be difficulties with your friends which you will be able to sort them out. Average fishing results can be expected.

PISCES (Feb. 20 to Mar. 20) :

You will be in fluctuating moods. Several complications in your professional matters keep worrying you. However your innate abilities will help you in meeting the challenge. Do not get provoked by the comments made by others. Be careful about money matters. Do not take up any new business ventures but concentrate on those on hand. If you face any difficult situation it is better to take advise of experienced persons. There can be unforeseen turn of events for which you have to be prepared. There may be persons seeking financial assistance from you. You must avoid unnecessary spending. Fishing results will not be to your satisfaction. However some satisfactory fishing can be expected towards the end of the month.

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